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THIS WEEK'S NEWS

PAGE

EXPORT OPPORTUNITIES for British suppliers of building materials and recent progress in building development and research in the Dominions are described in the following special features: "State Housing in New Zealand" (page 510); "Modern Canadian Housing" (page 513), and "Architecture and Building Research in Australia." 515

DESIGNS for Baghdad Railway Station, prepared by Mr. J. M. Wilson, A.R.I.B.A., and Mr. H. C. Mason, F.R.I.B.A., are described and illustrated. 521

RESIDENCES for Europeans at Ikoyi, Lagos, Nigeria, designed by Mr. Edward D. Mills, F.R.I.B.A., are described and illustrated. 524

A SCHEME for 5,100 native dwellings is being carried out at Klipspruit, South Africa, for the Johannesburg City Council. 527

THE BRITISH INDUSTRIES FAIR, 1949, opens at Castle Bromwich, Earls Court and Olympia on May 2. Details are given of some of the principal building exhibits which will be on view. 532

THE NEWS that the British building industry is exploring the possibility of sending representatives to the U.S.A. to study building methods under the Anglo-American Productivity Council Scheme has been announced by Mr. Norman Longley, President, N.F.B.T.E., who has also stated that copies of the Federation's report on incentives problems will be circulated to members "within the next few weeks." 538

THE POSSIBILITY of the nationalisation of the cement industry has prompted Mr. George Earle, chairman of Associated Portland Cement Manufacturers, Ltd., to address a letter to stockholders requesting their views on the matter. 539

THE RECOMMENDATION that 150 experimental houses be built to determine types of house design, services and equipment likely to ensure the best living conditions in low cost houses is made in the first report of the Advisory Council on Building Research and Development. 539

MR. HOWARD M. ROBERTSON, M.C., F.R.I.B.A., S.A.D.G., who has been elected an Associate of the Royal Academy.

BUILDING'S PLACE IN THE EXPORT DRIVE

THERE can be no doubt that the building industries can, and should, play a far larger part than at present in the national export drive. The development of the Colonies and similarly under-developed territories should provide the building industries with an assured market for decades to come—a market, moreover, which should suffer less from the intensification of international competition than some of our other export fields in which we are already beginning to meet the difficulties of the "buyer's market."

There are, broadly speaking, two ways in which the building industries can join in the export drive—namely, by the export of materials and components and by the provision of professional and contracting services. The export of buildings as such is, of course, out of the question, with the exception of small, light, prefabricated structures. Nor does there appear to be much scope for building trade craftsmen to work abroad, except as high-class foremen and in similar capacities. But for the two main categories which we have mentioned the prospects, viewed on a long-term basis, appear almost limitless. The articles which appear in this issue illustrate just a few of the possibilities which exist not only in the Colonies and other under-developed areas, but also in some of the better developed Dominions.

It may be useful, therefore, briefly to consider what are the conditions under which the British building industries can most effectively contribute to the development of these overseas territories. It is a significant fact that it is not the totally undeveloped territories which provide the greatest opportunities. In the first place, a poorly-developed country is generally not in a position to pay for the building and engineering works it urgently needs, a state of affairs which the succession of Colonial Development and Welfare Acts passed since 1940 have attempted to overcome by providing for grants and loans from the British Treasury. Second, the best export markets are likely to be those where certain basic building materials industries are already established. This may seem a paradox, but a moment's consideration shows that it is a commonsense conclusion and it is borne out by pre-war experience. The reason is that such materials as cement and bricks are costly to carry in relation to their money value; if they have to be shipped from England to distant countries, the cost of building in those countries may well be prohibitive, or at least a strong deterrent. If, on the other hand, materials such as brick and cement are produced locally, then the British exporter is much more likely to find a market for other materials such as paint, glass, sanitary ware and electrical equipment. This is not to suggest that there will be no overseas market for bricks and cement, but this overseas demand is likely to be for the more specialised types of these materials.

At the present time, of course, any attempt to encourage the export of building materials will be confronted with the difficulty that existing supplies are scarcely adequate for home needs. This difficulty is obviously a serious one for the contractor as well as the manufacturer who is looking for overseas orders. There are, however, two steps which can be taken immediately to deal with this problem. First, the Government should recognise the very substantial long-term contribution which the building industries can make to the export drive, and plan accordingly. The economic planners should be instructed to provide in their estimates for a considerable expansion in the productive capacity of the materials industries, which should be given a high degree of priority in securing the necessary plant and equipment. Second, the manufacturers can help them-

selves by undertaking research into improved methods of production with a view to lowering costs and to securing as much output as possible with the raw materials and labour available. The prospect of a steady market at home and of expanding markets abroad should encourage manufacturers to expenditure both on research and capital equipment.

Although it is quite clear that there are enormous possibilities for developing building exports, the subject of overseas building development is one which will require continuous study and attention. Neither contractors nor manufacturers can expect orders to fall at their feet. The contractors have formed a very useful Export Group which draws the attention of its members to contracts abroad and endeavours to smooth out through the appropriate Ministry any difficulties which may arise. This is a most valuable piece of work deserving the fullest support and recognition. There is, however, a further requirement—namely, the studying of long-term trends and the dissemination of information about those trends to contractors and manufacturers. This will be especially important if manufacturers are to launch out into schemes of expansion. Building in the under-developed areas is likely to be an accelerating process, with comparatively few schemes at first but with more work coming forward as each territory's economic position steadily improves. Manufacturers at home will need, therefore, to be kept informed as to how overseas development is progressing and what are the immediate prospects at any given time. They will also need to know, of course, of the special technical requirements of overseas building construction. Except on this last point (on some aspects of which a special unit of the Building Research Station is believed to be working), apparently nothing is being done at present. At one time the Building Industries National Council did some useful pioneer work by drawing attention to the possibilities of overseas building development, but that work appears to have ceased. In any event, what is now needed is something more comprehensive and detailed than that attempted by B.I.N.C.—something more in the nature of market research. This is a matter which both the contractors and the materials producers clearly ought to consider.

To sum up, therefore:—

(1) The building industries can become a major exporting industry;

(2) The most favourable markets are those countries where some development has already taken place;

(3) The Government should give the necessary priorities to manufacturers who wish to extend their plant with a view to entering into the export of materials. Manufacturers should also undertake research to this end; and

(4) Close detailed study of overseas development is necessary by both contractors and manufacturers.

NOTES AND NEWS

A New Architect A.R.A.

HIS election as Associate of the Royal Academy crowns for Mr. Howard Robertson a remarkable year in which he has been Centenary President of the Architectural Association and has been awarded the Royal Gold Medal. We congratulate him on an acknowledgment of the position he has won for himself in architecture all the more sincere in that it is made by a body composed for the most part of artists other than architects.

At 60, Howard Robertson is in the singular and enviable position of being eligible for any eleven picked either by the architectural *avant garde* or by the straight bat traditionalists. As such, he is in a position of influence in national and international architectural affairs, a position to which his American birth, Beaux-Arts education and British practice have contributed. In three matters has he been particularly fortunate—his disposition, his wife, and his partners. The first is conditioned by the deep interest he takes in life, and in the ideas and affairs of others, a trait which has enabled him to avoid the egocentricity sometimes met with in lesser men and apt to constrict an art as closely associated with humanism as architecture. The second thing on which he, rightly, will consider himself fortunate is his wife, who, as an architect in her own right, possessing an innate sense of design, is probably his best critic.

Public Work v. Private Practice.

THE new A.R.A.'s partners are the third of his assets. There are architectural families who have made contributions over a long period to the welfare of the profession of architecture; among these the Gilbert Scotts, the Waterhouses and the Webbs will always have an honoured place. But it may be questioned whether any partnership has given more of its time to the service of the profession than the firm of Stanley Hall, Easton and Robertson (now, alas, Easton and Robertson only). One president and two vice-presidents of the R.I.B.A.; three presidents of the Architectural Association; and a president of the Building Industries National Council: these alone would be a formidable contribution without the innumerable committees, papers, and addresses, etc., which have engaged the senior partners of this firm, in the burden of which the younger members are beginning to take their share.

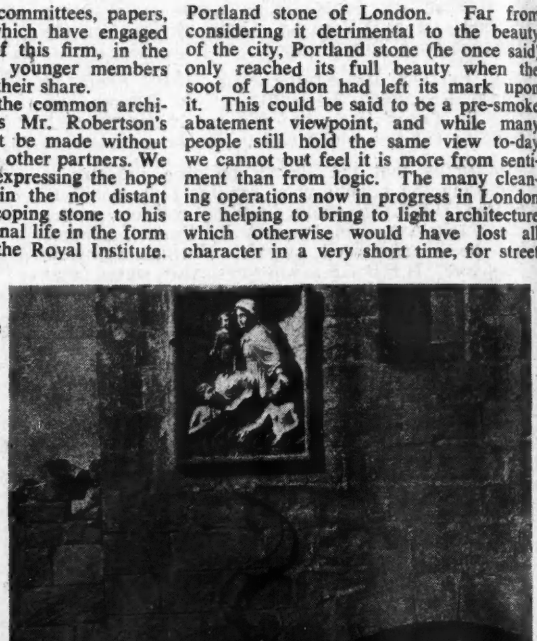
A contribution to the common architectural weal such as Mr. Robertson's firm has given cannot be made without severe hardship on the other partners. We do not forget this in expressing the hope that Mr. Robertson in the not distant future may add the coping stone to his distinguished professional life in the form of the Presidency of the Royal Institute.

Other R.A. Elections.

ALSO elected to A.R.A. is Mr. Siegfried J. Charoux, the sculptor, whose work has attracted much attention for some years past for its vigour and quality of original thought. Mr. Henry Rushbury, R.A., becomes Keeper of the Royal Academy, in place of Mr. Philip Conrard, R.A., who is retiring this year.

Cleaner Buildings.

IT is certainly heartening to see so many London buildings undergoing a thorough external renovation, for although much is written in these days in praise of lichen, dirt and decay in architecture, these attributes seldom suit London buildings, which too soon acquire an air of smoke-ridden depression. It was the late Sir Edwin Lutyens who chose to praise this effect of urbanism upon the Portland stone of London. Far from considering it detrimental to the beauty of the city, Portland stone (he once said) only reached its full beauty when the soot of London had left its mark upon it. This could be said to be a pre-smoke abatement viewpoint, and while many people still hold the same view to-day we cannot but feel it is more from sentiment than from logic. The many cleaning operations now in progress in London are helping to bring to light architecture which otherwise would have lost all character in a very short time, for street



A coloured plaster relief at Ta Stabar, Malta.

architecture has an important individual role to play in the pattern of a city, and the re-grooming of the old ones of quality is altogether for the good of our past, present and future architectural heritage.

Flowers as Decoration.

INCIDENTALLY, a three-halfpenny bus ride from Bond-street to Piccadilly Circus well repays even the irritation of traffic blocks by the delightful displays of flowers on some of the Oxford-street and Regent-street stores. For some years there has been a growing tendency to put window ledges and the tops of entrance *marquises* to the purpose of housing flower boxes, and while it has been a near crime to paint buildings, the resultant colour has been a joy. Now that it is apparently once again a mark of good citizenship to clean buildings and to restore paintwork, we hope that those business houses and cinemas which have used flowers as decorations will not abandon the habit. We shall need all the colour and gaiety we can get for the 1951 Festival.

Earthquake!

A CORRESPONDENT recently back from the United States has been telling us of the havoc caused in the recent earthquake in Seattle. Many buildings of light construction were destroyed and the insurance companies are blanching at the probability of having to foot the huge claims about to descend upon their offices. Not knowing much about the architecture of Seattle, we do not know its capacity to withstand even the mildest of earthquake tremors, but we fancy that any region which lives within an earthquake zone is prone to an extraordinary number of conflicting theories regarding the best lines to follow in town development and in the general design of its buildings. Here, one imagines, the rival viewpoints would be, whether to build to withstand the possibility of an earthquake, or whether to build lightly, impermanently, with the general view that a fresh start is better than the vast trouble of clearing the debris of more solid building. But hope springs eternal in man, and there is a saying (which has been proved erroneous in the past) that an earthquake never strikes twice in the same place. This hope creates new cities after the tragedy has occurred, and somewhere just about here is the most impressive example of man's perseverance in building that we know.

A Planning Exhibition.

AN exhibition showing the areas in Great Britain scheduled for replanning and the proposals for redevelopment was opened to the public on April 21, at 19, St. James's-square, W.1. Dame Evelyn Sharp, deputy secretary of the Ministry of Town and Country Planning, who was present at the opening, described the exhibition as being of exceptional interest because it embraced the chief aspects of planning development in a comprehensive display that could be shown by local authorities. Planners had experienced difficulty in illustrating their ideas in intelligent, non-technical terms which the public could understand, and she believed the exhibition conveyed the subject in a way that was both novel and distinctive.

The exhibition shows, by means of photographs, drawings, diagrams and models, the problems involved in redevelopment and how they might be overcome.

The exhibition has already been seen in Australia and Germany, where it is said to have evoked much interest. It has also been on view for a brief period at the Royal Institute of British Architects. It will shortly tour the provinces, the first places it is likely to visit being Southall, Tunbridge Wells and Liverpool.

HEMEL HEMPSTEAD NEW TOWN. The Mayor and Bailiff of Hemel Hempstead is here seen laying the foundation stone of the first house to be started in the New Town. Further details and views of a model of the housing are on page 531.

Proposed Alternative to Bracknell Site.

THE Minister of Town and Country Planning, Mr. Lewis Silkin, made a personal inspection of the alternative site which was proposed by farming interests at the recent public inquiry into the proposed now town at Bracknell. Mr. Silkin was accompanied by the Secretary to the Crown Commissioners and by officials of his own department.

Housing Deputy at Westminster.

MR. E. J. EDWARDS, A.R.I.B.A., A.R.I.C.S., chief architectural assistant, Woolwich B.C., was recommended at the meeting of the Westminster City Council on April 28, for the post of Deputy Director of Housing at a salary of £1,060, rising by annual increments to £1,360.

Appointment.

MR. L. W. HUTSON, O.B.E., F.R.I.B.A., F.R.I.A.S. (who formerly was the Director of Bricks, Ministry of Works) has been appointed a member of the Building Research Board for four years from April 1, 1949.

Professional Announcements.

MR. F. W. MACKENZIE, L.R.I.B.A., F.I.A.A., chartered architect and surveyor, has moved to 237/241, Regent-street, London, W.1 (Tel: Regent 3900, unchanged).

MR. J. R. WETHERELL, L.R.I.B.A., has been joined in partnership by Mr. A. J. Lamb, L.R.I.B.A., F.I.A.A., who has resigned his appointment as Regional Architect of the Ministry of Health for the County of Northumberland. They will practise as J. R. Wetherell and Lamb, chartered architects and surveyors, at Tweedholme, Picton-place, Newcastle-on-Tyne, 1, and at Hutton Tower, Hutton Rudby, Yarm, Yorks. (Tel: Newcastle 22048).

COMING EVENTS

Friday, April 29.

ROYAL ACADEMY OF ARTS.—181st Annual Exhibition. Private View. Burlington House. 10 a.m.

Saturday, April 30.

ROYAL ACADEMY OF ARTS.—181st Annual Exhibition. Burlington House. 10 a.m.

Monday, May 2.

BRITISH INDUSTRIES FAIR.—Opening at Castle Bromwich, Olympia and Earls Court. Closing date: May 13.

THE ROYAL INSTITUTION OF CHARTERED SURVEYORS.—Discussion on Mr. J. D. T. Eve's address given on April 4. 5.30 p.m.

THE SOCIETY OF ENGINEERS.—"Air Lift Pumping," by Bernard Payne, M.S.E., A.M.I.Mech.E., M.J.I.E. Geological Society, Burlington House, W. 5.30 p.m.

Tuesday, May 3.

ARCHITECTS' BENEVOLENT SOCIETY.—A.G.M. 66, Portland-place, W.1. 12 noon.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—A.G.M. 66, Portland-place, W.1. 6 p.m.

HOUSING CENTRE TRUST.—"Housing Standards," by Mr. E. Maxwell Fry, F.R.I.B.A. 13, Suffolk-street, London, S.W.1. 6 p.m.

Wednesday, May 4.

TOWN AND COUNTRY PLANNING ASSOCIATION.—"The Outline Plan for South Wales," by Mr. T. Alwyn Lloyd, F.R.I.B.A., P-P.T.P.I. 28, King-street, W.C.2. 6.15 p.m.

LONDON MASTER BUILDERS' ASSOCIATION (SOUTHERN AREA).—General meeting. Mr. D. E. Woodbine Parish, F.I.O.B., on "Training Foremen." Café Royal, North End, Croydon. 2 p.m.

Friday, May 6.

THE ENGINEERS' GUILD.—Discussion on "The Guild as an Association of Professional Engineers." Speakers, Mr. Robert Chalmers, O.B.E., B.Sc., M.I.C.E., M.I.Mech.E., and Mr. J. H. W. Turner, B.Sc.(Econ.), B.Sc., A.M.I.C.E. Rankine Hall, 39, Elmbank-crescent, Glasgow, C.2. 7 p.m.

FROM "THE BUILDER" OF 1849

Saturday, April 28, 1849.

BRICKS.—A return obtained by Mr. Cocks, M.P., shows the duty paid on bricks in the several excise collections of England in the year 1848 to have amounted to 448,310*l.*, of which 10,386*l.* were paid in the metropolis alone.

The Dixon-street flats, Wellington, completed in 1943.

STATE HOUSING IN NEW ZEALAND

Export Opportunities for British Suppliers

ALTHOUGH the housing problem in New Zealand has seldom been so serious as that of many older countries, successive Governments in the Dominion have passed measures to assist house construction, mainly by providing loans for citizens who wished to build. Nothing noteworthy was achieved, however, until the present Administration set up its Department of Housing Construction (now under the Ministry of Works) in September, 1936, and put into operation a vigorous State building programme.

To date, 30,000 houses have been built under that scheme, and if war had not intervened, the total would probably have doubled. For this year, 14,000 new houses are planned, of which 4,000 will be built by the State and the remainder by private constructors. Many of the latter, however, will be financed by the New Zealand State Advances Corporation, which has a special Housing Account.

Before launching its building scheme, the New Zealand Government conducted a nation-wide housing survey, to provide information as to the number of dwellings which were overcrowded, and those which came below a set standard of fitness for habitation. The survey covered such matters as the type and construction of dwellings, their condition, the presence or absence of proper sanitary and domestic conveniences, the number of persons occupying these dwellings, and the bedroom occupation in relation to the number of occupants.

In arriving at a standard of fitness for dwellings it was considered that a house should not only be free from structural defects but should also have reasonable convenience and amenities. The minimum New Zealand standard demands proper provision for light and ventilation, drainage, and adequate sanitary conveniences. It also requires modern facilities for washing and cooking, together with proper provision for the storage of food. A further requirement is adequate yard and air space for each house.

Further to this survey, a statistical system has been devised, based upon applications received from all persons in need of housing. This gives a definite guide as to the actual shortage in each locality throughout the Dominion, and shows the number of potential tenants waiting for houses, as well as their particular requirements—*i.e.*, number of bedrooms, etc. Thus the Department knows where the greatest demand for houses exists, and has a reliable guide as to the urgency and the extent of the problem in various localities.

With a view to providing maximum employment (since experience in Britain has shown that nothing helps more than housing to solve unemployment problems) the initial policy was to build an "all New Zealand" structure. It was decided to give every State house a concrete foundation, a floor of heart timber, an electric heating-point in each room and, where the cost of transport allowed, a tiled roof; to fence and put down a concrete path to each house; to fit copper piping, particularly for hot-water systems, instead of the cheaper galvanised material—since the aim has always been to build for durability; and, notwithstanding the additional cost, to separate the lavatory and bath accommodation. Existing homes were—and still are—visited to ascertain the opinion of women in their houses concerning such essentials as electricity compared with gas, coal compared with gas and electricity, and so on.

To-day, all new plans are prepared by the Department's own architects; but at the outset the New Zealand Institute of Architects was asked to design plans to a master specification, within the range of the materials that were to be used. Standardisation was to be achieved with the height of the stud; with the elevation, though not the design, of the windows; and in a dozen other ways. But, although existent, the standardisation was not to be apparent. Individuality has been a guiding principle in all the planning, and only the kitchen layout has been obviously standardised, to allow a woman to run her home with a minimum of walking.

Housing Layouts.

In laying out each separate housing scheme a definite system of grouping is adopted. Dwellings are sited at distances varying from 20 ft. to 60 ft. from the front boundary. On flat land they are staggered in saw-tooth fashion, symmetrically set back, or grouped about some central feature. On hilly sites they are arranged to conform to the natural contours of the land, care being taken to avoid excessive excavation. Narrow houses, preferably with side entrances, are selected, and placed parallel with the contours. The minimum width between house and side boundary is not less than 5 ft. on one side and 9 ft. on the other,

the latter width being great enough to allow cars to be garaged at the back of the house. Where required, detached garages are provided, but there is an increasing tendency to build communal garages in groups of five or six.

Dwellings are planned and arranged on the site to make the most of any view available and to expose the side to the sun as much as possible. Living-rooms are given the choice aspect—that with the maximum sun and view. A view of the street from the living-room is considered an advantage, and living-rooms are arranged to avoid overlooking adjoining porches and windows. Generally, bedrooms receive the morning sun, and kitchens the morning and afternoon sun. Care is taken to ensure that front and back porches are sheltered from the prevailing wind.

The average area of detached houses is approximately 1,000 sq. ft. The bed-sitting-room type of flat, the smallest unit erected, has an area not less than 400 sq. ft. Living-rooms have an average area of about 180 sq. ft., and bedrooms 130 sq. ft. Up till 1940, in each group of houses 15 per cent. had four bedrooms, 40 per cent. three bedrooms, 35 per cent. two bedrooms, and 10 per cent. one bedroom each. Since that year, the proportion throughout the Dominion has been on the following basis:—15 per cent., one bedroom; 15 per cent. one bedroom and sun-porch; 30 per cent., two bedrooms; 25 per cent. two bedrooms and sun-porch; and 15 per cent. three bedrooms, with a few provided with sun-porches.

The accommodation provided in a two-house unit dwelling comprises a living-room, one or two bedrooms, a bathroom, a kitchen, and a laundry. In three-, four- and eight-house units a generous living-room with bed recess attached, a bathroom, and a kitchen is the rule. One laundry serves the dwelling blocks. Some houses may have a dining-room; others have a meals recess off the living-room or kitchen.

Building new suburbs (timber), Wellington, N.Z.

Equipment and Accessories.

As a rule the kitchen is not regarded as an eating-place, but as a workroom, and is fully equipped with cupboards, bins, drawers, safe, drying cupboard, terrazzo sink-top, and electric or gas range; space is frequently provided for a work-table. An electric or gas hot-water service is installed. Open fireplaces are provided in living-rooms. Each dwelling has a separate coat cupboard and linen cupboard, and all bedrooms have a built-in wardrobe. All baths are built-in, and each bathroom is fitted with a shaving cabinet and mirror. Separate laundries are provided for detached and semi-detached houses. A wireless aerial is provided in the roof-space, and connected with the living-room.

Front gardens have been treated on broad lines by eliminating dividing fences. A trellis fence is built between the houses, and a post-and-wire or board-and-batten fence is carried round to the rear of the trellis, thus providing a secluded and safe playing place for children. In each block, adequate areas are

Houses in McCullough-avenue, Mt. Roskill, Auckland.

reserved for adult recreation, organised games, gardens and children's playgrounds, in accordance with the best town-planning principles. The average aimed at over the Department's estates is about 10 per cent., depending on existing reserves in the particular locality. An expert town planner supervises the planning and the sub-divisions, and the acquisition of new land—all of which are functions of the State.

The actual erection of houses is mainly done by private contractors, although houses in each of the four main centres are being built by trainee labour as part of the Government's scheme for increasing New Zealand's artisan man-power. The State is to retain ownership of the dwellings, but the occupiers may remain as tenants for as long as they wish. Rentals range from 14s. to 15s. 6d. for bed-sitting room flats, up to 32s. 3d. to 42s. 6d. for seven- or eight-roomed dwellings. They have been fixed by the usual commercial computations, and a depreciation reserve is being built up at a rate which in 60 years will recoup the full costs of construction.

About 80 per cent. of the demand for houses is in the cities of Auckland and Wellington, and in both places the Department has undertaken the erection of multi-unit blocks—a departure from the traditional New Zealand preference, which is for individual dwellings, well spaced by surrounding plots of land. The first block, comprising 50 flats, was completed in Wellington in 1940, at a total cost of £59,194. It has a site of two acres, is on a tram route, and in the heart of a busy shopping and industrial area. It faces well to the sun, and gives easy access to playing-fields and beaches.

In the same city another block (the "Dixon-street Flats") was completed in 1943. This embodies 116 one-bedroom type of flats, with lounge room, kitchen, bathroom, etc. The site is only five minutes' walk from the General Post Office, and has an area of approximately one acre.

This project is in many ways unique. The architects aimed to develop a multi-unit block scheme which would provide the advantages that flat-planning makes possible, without the disadvantages. They set out to secure: (1) privacy to each flat unit; (2) sunlight and air to each unit; (3) freedom from noise for each unit. Privacy has been gained by providing separate entrances to each flat from an open-air gallery approach, and the fact that the windows to the living and bedrooms are so placed that it is impossible to be overlooked by adjoining windows and balconies. The block gives the impression of small individual houses placed in rows one above the other, each with its separate front door and private outlook.

Government houses under construction at Nae Nae, a suburb of Wellington.

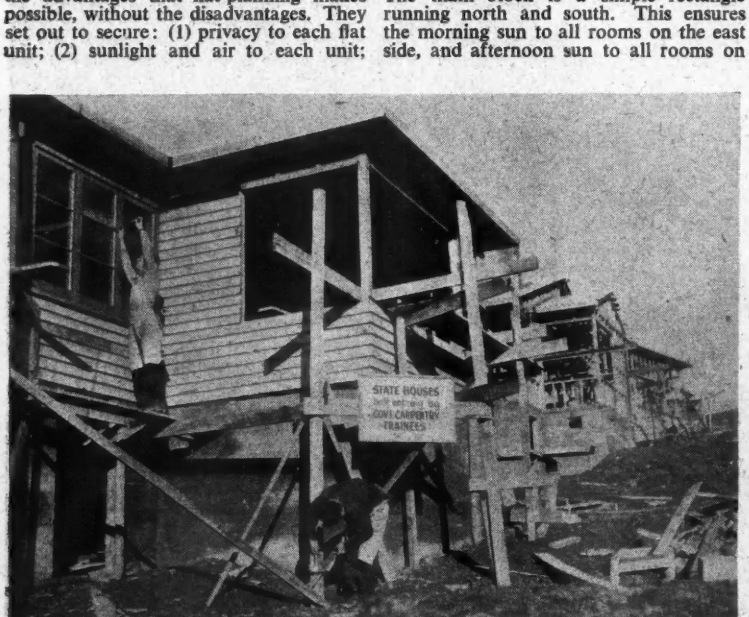
Maximum sunlight and air have been obtained for each flat by providing the living-rooms and bedrooms with an unobstructed view of the sky and the harbour. The windows have been made as large as practicable, but at the same time have been planned to allow the convenient placing of furniture in each room. The main block is a simple rectangle running north and south. This ensures the morning sun to all rooms on the east side, and afternoon sun to all rooms on the west side. No rooms face the south (the "shadow" side in that hemisphere) except the kitchens to some half-dozen flats.

Freedom from noise has been obtained by structural insulation. Care has been taken to see that in all cases living-rooms adjoin in different units. Also the two habitable rooms—the living-room and bedroom—are insulated from the noise of the access balcony by the bathroom, hall and kitchen. In all cases only the two side or partition walls abut adjoining flats. These walls are of 8-in. reinforced concrete. All floors are constructed of 5-in. concrete. On top of this are wood joists laid with a sound-absorbent rubber pad between the joists and the concrete. The joists are finished with 1-in. wood flooring, the whole making a very effective barrier against sound.

Export Opportunities.

While New Zealand can produce most of the bulk materials—timber, cement, bricks and tiles—needed for her housing projects, there are many "accessory" lines which she must import. These include builders' hardware, which is produced locally, but only in a small and restricted range; plumbers' supplies of all descriptions; and sanitary earthenware. The completion of buildings is frequently held up through lack of these, and there is a considerable field for the British supplier. "Buy British" has long been a favourite slogan in New Zealand so far as imports are concerned, while dollar difficulties and the recent adjustment of the sterling-New Zealand exchange rate now give suppliers from this country a very distinct advantage.

Local production of cast-iron enamelled baths also falls far short of requirements, while there is an unsatisfied demand for asbestos-cement products such as corrugated and flat sheets for roofing and walls, asbestos drainpipes, spouting, etc. New Zealand has two large manufacturing plants for asbestos products, but owing to the difficulty of obtaining raw material, which must be imported from Canada or South Africa, these now work well below capacity. New Zealand imports all her window glass from Britain, and is still short. Other badly-needed



Government carpenter trainees (ex-Servicemen) at work.

supplies are lead sheet, plain and corrugated iron, and copper and brass tube.

On the electrical side, local industry supplies irons, kettles, switches, etc., but there is room for a large range of high-quality switches, wiring, conduits and other electrical fittings. New Zealand makes practically nothing in the way of artisans' or artificers' tools, while she also imports motors and machinery used in building. The people there are "mechanically minded," and any new labour-saving equipment or machinery applicable to housing construction would be favourably received by both State and private contractors. The New Zealand Government is keen to press on with its housing projects, and to avoid hold-ups due to shortages in manpower or materials. Thus, all possible facilities are extended to the British supplier.

A. L. KIDSON.

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MODERN CANADIAN HOUSING

Steps to meet post-war shortage

By HENRY B. BEES

CANADA, since the end of the war, has had to face a critical country-wide shortage of housing. Reasons for this deficit are not hard to find, for, from the early 'thirties, when economic conditions were chiefly responsible for a drift toward the urban centres, overcrowding became a bad feature in the cities, and multiple occupancy of various kinds in these centres increased rapidly. From a peak of 50,200 housing units built in 1928, the number of new constructions in urban areas had dropped during the depression period to 14,000 in 1933. While war was on, production of vital war needs had to swing into high gear, and emergency housing, mostly of a temporary kind, became the rule; that is, the building of homes for the accommodation of workers in war plants and others whose housing conditions were desperate.

The number of marriages since 1940 has been at a very high level, the migration from rural to town districts has persisted and even multiplied, and, finally, demobilisation and the arrival of a stream of war brides in Canada put further pressures on the limited amount of shelter available.

Since 1935, the Dominion Government has administered, through various agencies, legislation designed to assist in the financing and improvement of housing throughout Canada. To help meet present problems and to achieve a greater measure of co-ordination Central Mortgage and Housing Corporation, a Government company, was formed in December, 1945, and was given a special grant of Government funds.

A year previous to this a National Housing Act (familiarly known as the N.H.A.) was passed by Parliament. Under this Act, the Corporation is authorised to lend money on long terms for the construction of houses. The down-payment which the borrower must make is reduced as much as possible; a longer repayment period than usual is allowed; the borrower may pay for his home by convenient monthly payments similar to rent. He will pay no more than four and a half per cent. interest per annum (calculated semi-annually) on money borrowed under the Act. In addition prescribed standards of construction must be met, with a view to improving housing generally in Canada. Loans are of two kinds—joint loans, made in conjunction with approved lending institutions (life insurance and Trust and Loan companies), and direct loans, made by the Corporation itself.

On these joint loans 25 per cent. of the money borrowed is furnished by Central Mortgage and Housing Corporation, and 75 per cent. by a lending institution, the loans being made by and through the latter. Repayment is secured by a first mortgage on the house and land. The land on which the house is to be built must be owned by the applicant before construction is started. Payment of interest and taxes will start two months after the property has been completed and occupied.

Rented Accommodation.

On account of the very great need for rental housing in Canada, the Dominion Government is attempting to stimulate the supply of privately-owned rental accommodation. This is in view of the fact that only 30 per cent. of the houses built in 1946 and 1947 were for rent, the others being for home-owners. A liberal allowance for depreciation (twice the normal) was allowed for projects comprising four or more family units which meet requirements. Loans on approved types of rental housing were given for longer periods, and extension of priorities for materials, to assist in these constructions, was granted to builders. To stimulate further the lagging business of rental housing, a Rental Insurance plan was passed in 1946, to protect the investors who, because of dropping costs of building in future years, may not be able to compete with projects constructed a few years hence.

There was a marked increase in the number of loans approved under the N.H.A. in 1948, and the volume of lending exceeded that of any previous year. Loans for 18,827 housing units were approved in 1948 compared with loans for 10,933 units in 1947. Altogether, under Acts of 1935, 1938 and 1944, 73,286 housing units have been arranged for in all the Canadian provinces (except Saskatchewan), and the majority of the principal cities shared in the increased lending activity. To obtain the maximum accommodation for the expenditure involved, a type of dwelling known as the "1½ storey," in which the roofs are utilised as the upper walls, was encouraged by the Corporation.

SUMMARY OF 1948 OPERATIONS.

I. (a) Home-Ownership Applicants: 3,945 dwelling units, average loan per unit being 5,337 dollars.

(b) Integrated Plan (street of houses built simultaneously to facilitate work): 5,653 units, average loan per dwelling being 5,195 dollars.

(c) Builders (non-integrated): 5,980 units, average 4,172 dollars.

II. Rental Units.

(a) Applicants for Rental Property (priority in all cases to war veterans on basis of family need): 2,845 units, average loan per unit, 4,472 dollars.

Section 9a of the Act provides for loans to lumbering, logging, mining, and fishing companies to construct rental accommodation in outlying areas near or adjacent to the site of the companies' operations. In 1948 gross loans totalling 61,600 dollars to provide 23 houses were approved, one to a gold-mining company in Quebec and the other to a logging company in British Columbia. (In 1947 six companies had obtained loans for the construction of 105 units.)

In addition to the above, a total of 189 acres of land in five different localities was acquired by the direct action of the Corporation to provide 1,039 serviced residential lots. Arrangements are being completed for the development of the land and the installation of the services. In some cases local builders have undertaken the work of building these homes by contracts with the Corporation on a "cost plus 10 per cent." basis. Examples of these are seen in suburban areas of the cities, where space permits of community planning, such as artistic arrangement of the space allotted to the individual houses, the provision of community grocery stores, and other conveniences of modern town planning.

The year 1948 saw an increase in the direct construction activities of the Corporation. Operations were running 25 per cent. higher than in 1947, with an average weekly expenditure for construction of about 1,018,000 dollars. During the year 6,934 housing units were *completed* and rented to ex-Servicemen. There were 83 projects put under construction during 1948, chiefly in Ontario (2,944 units), the prairies, and British Columbia.

Improved Design and Layout.

The 1948 veteran houses were of new design. Planning included improved general layout, added features, variations of exterior finish and simplification of construction. Particular attention to improvement and standardisation of structural elements has led to easy on-site fabrication, the result of which has been satisfaction on the part of the contractors and a better home produced at lower cost. In this "on-site fabrication," panels for roofs and walls are made up in a workshop on the site of the project. From five basic styles or types of houses a great many finishes were developed, including vertical and horizontal wood siding, wood shingles and shakes, varying colours of asbestos shingles, stucco, aluminium siding and striated plywood, or a combination of these materials.

In the rural districts a decided impetus has been accorded to the building of new farmhouses, and the improvement of existing ones by the Farm Improvement Loans Act of 1944, under which the Department of Finance, Ottawa, shares the financial risk in co-operation with the Chartered Banks (3,200 Canadian branches). Under the Veterans' Land Act (V.L.A.), the Government, with the object of settling ex-Servicemen on the land, has also bought up farms in good crop areas, and has arranged for new buildings on these, if needed, to be paid for on a term-payment basis, due annually. Security in these cases is on the land, or on farm implements, and is arranged for by the individual farmer with his local bank manager, the latter being cognisant of local conditions. The Government has guaranteed the banks against loss up to ten per cent. of the loans. Provincial Hydro systems have extended their services over large rural areas, and are still expanding. This has led to the installation of new electrical equipment, including milking machines, lights in barns and poultry-houses, motors for pumping, running cream separators and washing machines.

Materials Situation.

An interesting feature is the use of power-spraying machines, for quicker and more efficient outdoor painting, which penetrates into crevices and covers sur-

faces more effectively and evenly. Good paint has been relatively scarce and the prices are high. Should price conditions become easier, it is likely that there will be a considerable demand for finishes, both interior and exterior, in the near future. A shortage of nails, sometimes quite acute, still exists to some degree. Builders' hardware, including wire lath for stucco foundation, locks for doors, especially those of good quality, tracks and pulleys for hanging heavy barn doors (very popular in Canada) and heavy hinges and fastenings for other types of doors, find a ready sale in country districts. Cabinet hardware of every kind, such as hinges and fastenings, is also very scarce, and the prices on these items have risen considerably since the ending of the war. Galvanised iron piping, and plumbing supplies in general, including bath-tubs and soil-pipes, have also been hard to obtain.

Carpenter tools, and also blacksmith tools and tool steel, have been, and still are, very scarce, and the price of those offered for sale is quite high. Moderately priced tools of dependable quality, and of a general type (saws, hammers, chisels, planes, steel squares, etc.), would sell extremely well just now, and probably for some years to come, since building activity will apparently continue as long as agricultural prices maintain their high level. Fittings for barns and silos, such as steel stanchions for cattle, and cast-iron tanks (individual) for watering cattle indoors, are improvements which may well be adopted in quantity as barns are modernised, as they undoubtedly will be. Seeing that practically every small sawmill in districts adjacent to forest areas has been active during the past winter, and that first-class lumber is now available, at last, in most country lumberyards, it appears certain that building in 1949 will see an extension of its recent post-war "boom."

New Industrial Centre.

Formerly one of the many "Defence Industries" towns which sprang up, mushroom-like, across Canada at the outbreak of World War II now an ideal location for new industries, is a 3,000-acre township between Toronto and Oshawa, on the north side of Lake Ontario, known as "Ajax." It has facilities for three types of transportation—rail, water, and a four-line highway. Its transformation into a peace-time industrial city is being undertaken by Central Mortgage, and it is being re-born as the Dominion's first fully-planned, self-sustaining industrial community. Sites for new industries have been designated, and locations established for further residential construction, roads and services, a commercial centre, parks, schools, and churches.

The vast plant area is already serviced with 60-cycle electricity, and has the additional advantages of adequate water and sewage disposal systems. Ideal as premises for certain types of peace-time manufacture, the floor area of existing buildings ranges up to 12,000 square feet in each. The objective policy of Central Mortgage and Housing Corporation is to develop at Ajax a thriving industrial community with a population of 30,000, and with this in view the company is welcoming inquiries from new or expanding industries.

*** Some recent official housing statistics are given on page 537.

REBUILDING OF CASTRIES, BRITISH WEST INDIES

Colonial Development Project

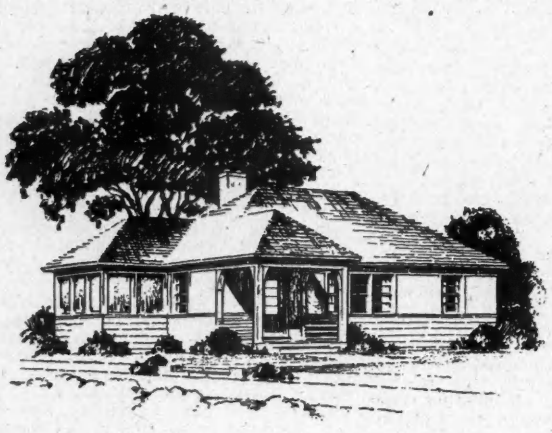
WORK begins this month on the rebuilding on modern lines and with modern services of the town of Castries, on the island of St. Lucia, British West Indies. It will be recalled that a large part of the centre of the town was destroyed by fire for the second time in its history in June last year.

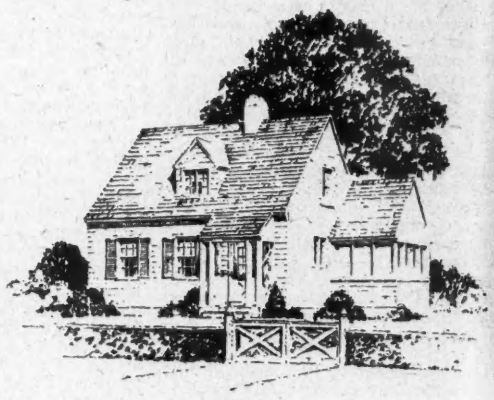
The work now proposed will be carried out in accordance with a new town plan prepared by the associated architects appointed for the purpose by the Windward Islands Government, Mr. J. C. Rose, A.R.I.B.A., and Mr. A. C. Lewis, B.Arch, A.R.I.B.A. Messrs. Holland & Hannen and Cubitts, of London, have been appointed contractors to the Colonial Development Corporation for the work, under the supervision of one of the architects in the Engineering and Works Division of the Corporation, Mr. E. W. J. Mitchell, A.R.I.B.A., and other assistants. Mr. Mitchell is now on his way to Castries.

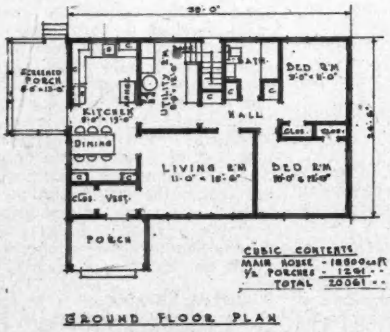
Local labour will be employed to the full and the chief materials to be imported are cement, steel and certain manufactured goods.

The population of Castries is about 25,000, mainly West Indians, with a few families of French origin. The chief industry is sugar production.

The Colonial Development Corporation will act as agents for the Government of St. Lucia for the rebuilding of the town.

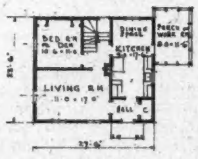




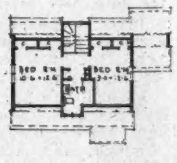


GROUND FLOOR PLAN

Farmhouse B/4/12



GROUND FLOOR PLAN

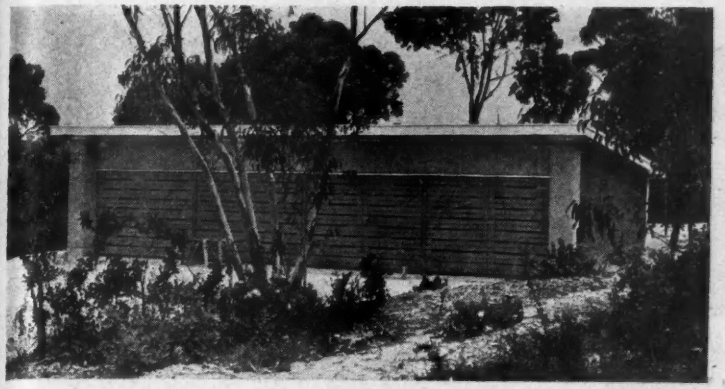


FIRST FLOOR PLAN

BASEMENT PLAN

Farmhouse B/4/6

These designs for farmhouses have been prepared by the Experimental Farmers' Service of the Canadian Department of Agriculture, Ottawa.

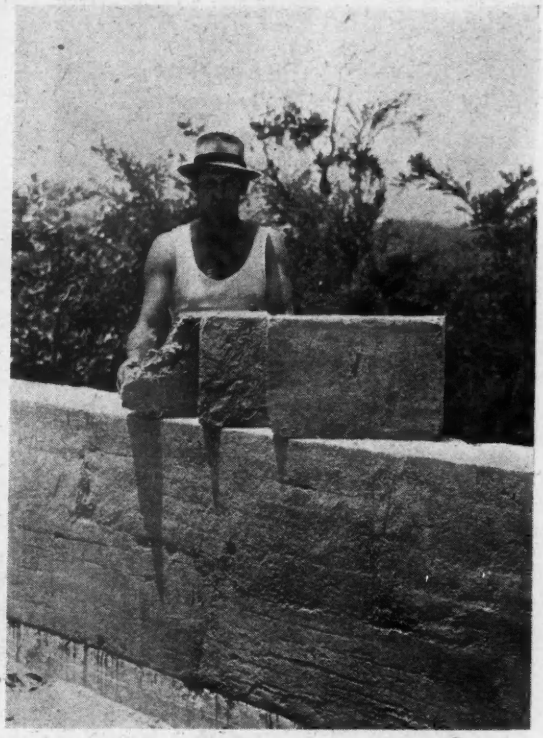


Pisé experimental garage at the Commonwealth Experimental Building Station.

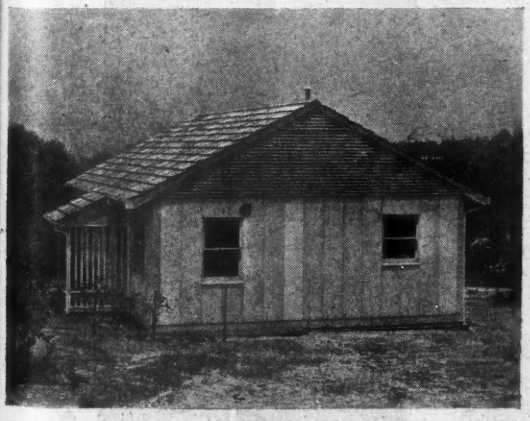
ARCHITECTURE AND BUILDING RESEARCH IN AUSTRALIA

LARGE-SCALE housing and general building programmes are being pushed ahead in the Federal capital, Canberra, and the six States of Australia. In this work the Commonwealth Experimental Building Station, maintained by the Federal Government at Ryde, New South Wales, is giving valuable assistance to the building industry. The station was established in 1943. On this and the facing page we illustrate some typical examples of post-war Australian architecture, together with recent experimental research work carried out at the C.E.B.S.

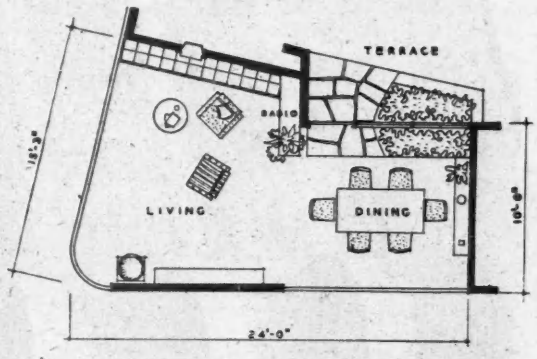
House at Palm Beach. Stafford, Moor and Farrington, architects.



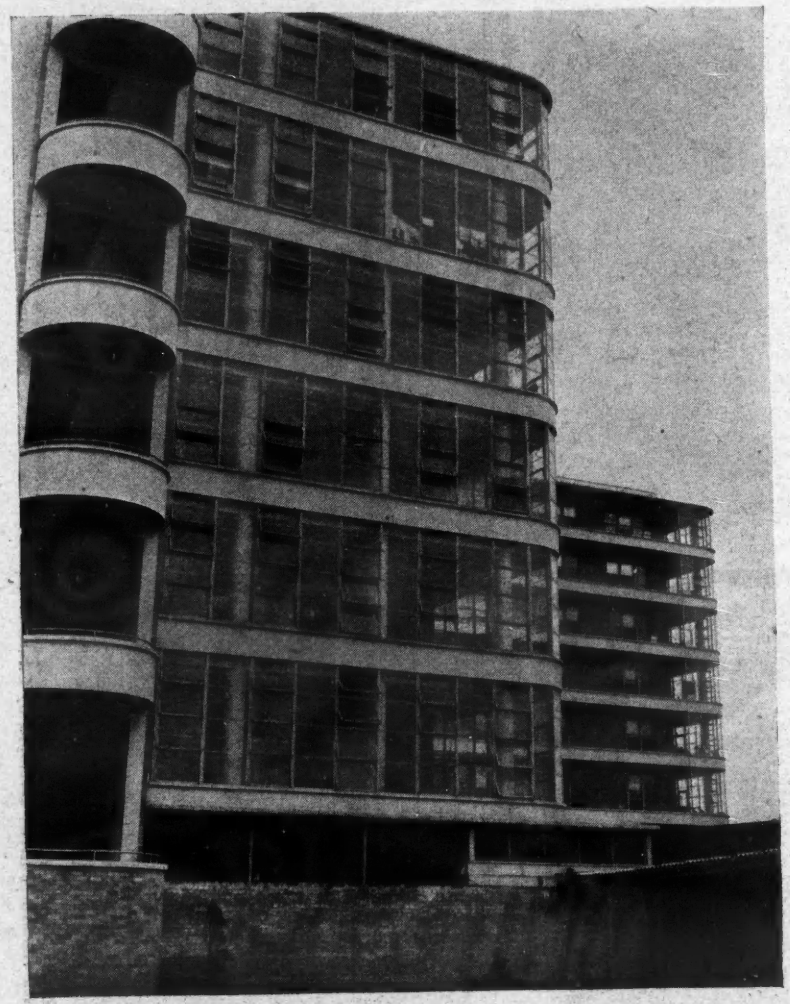
Section of pisé boundary wall and three adobe blocks being subjected to tests at the Commonwealth Experimental Building Station.



Prototype house 94, with vertical panel system of precast, prestressed vibrated concrete, developed by C.E.B.S.

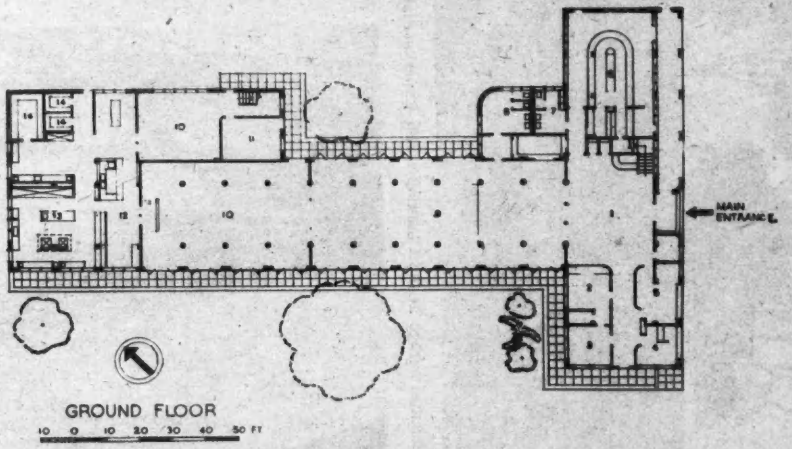


Exhibition layout of living and dining room. Gibson and Baldwinson, architects.

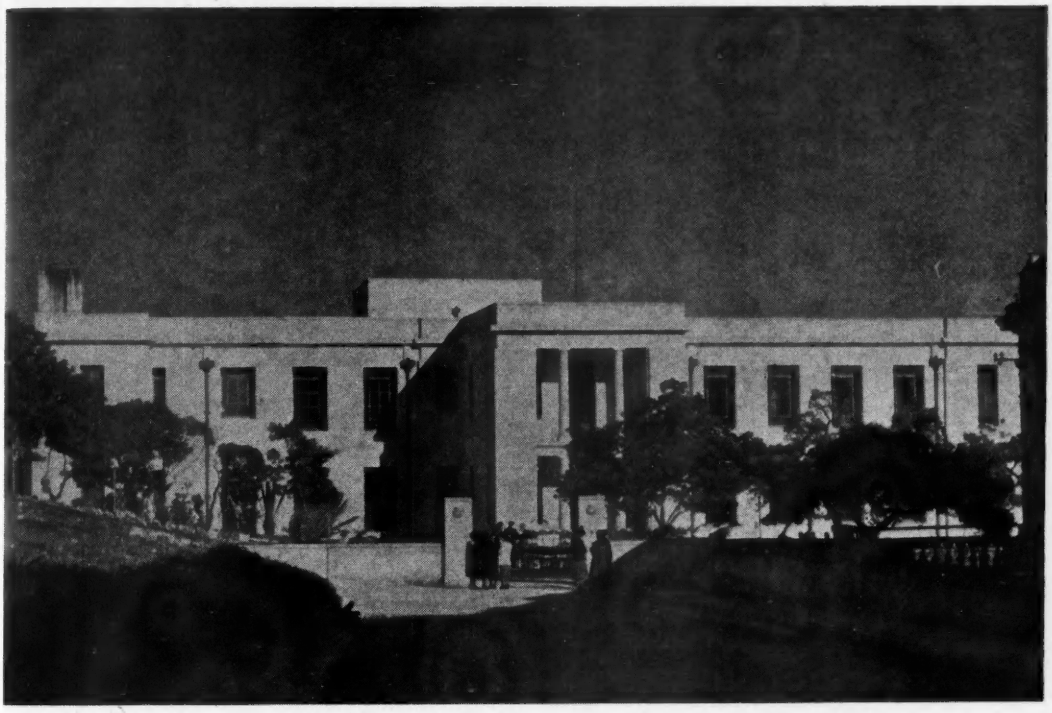


113th Australian Repatriation General Hospital, Concord, Sydney. Stephenson and Turner, architects.

Hotel Darwin, Northern Territory. Stephenson and Turner, architects.



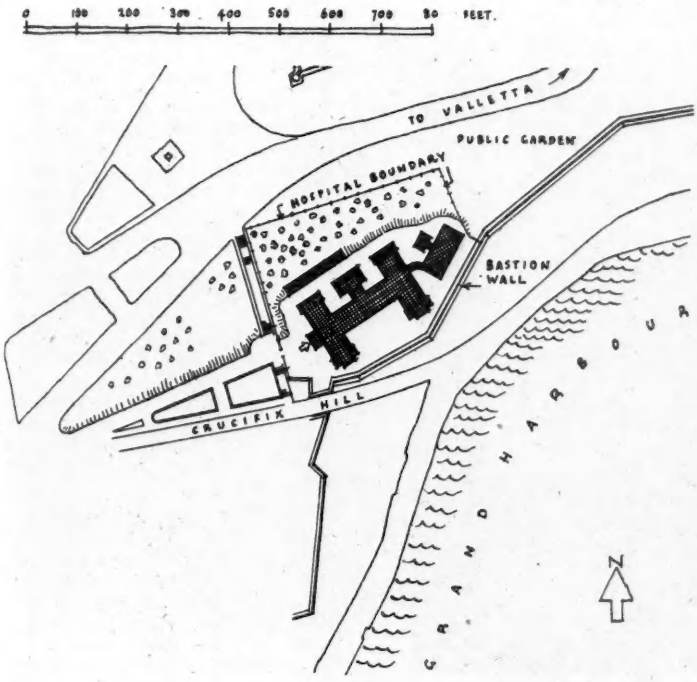
Hotel Darwin, Northern Territory. Ground-floor plan. Stephenson and Turner, architects.



View of entrance front from approach road. *Below*: **Site plan.**

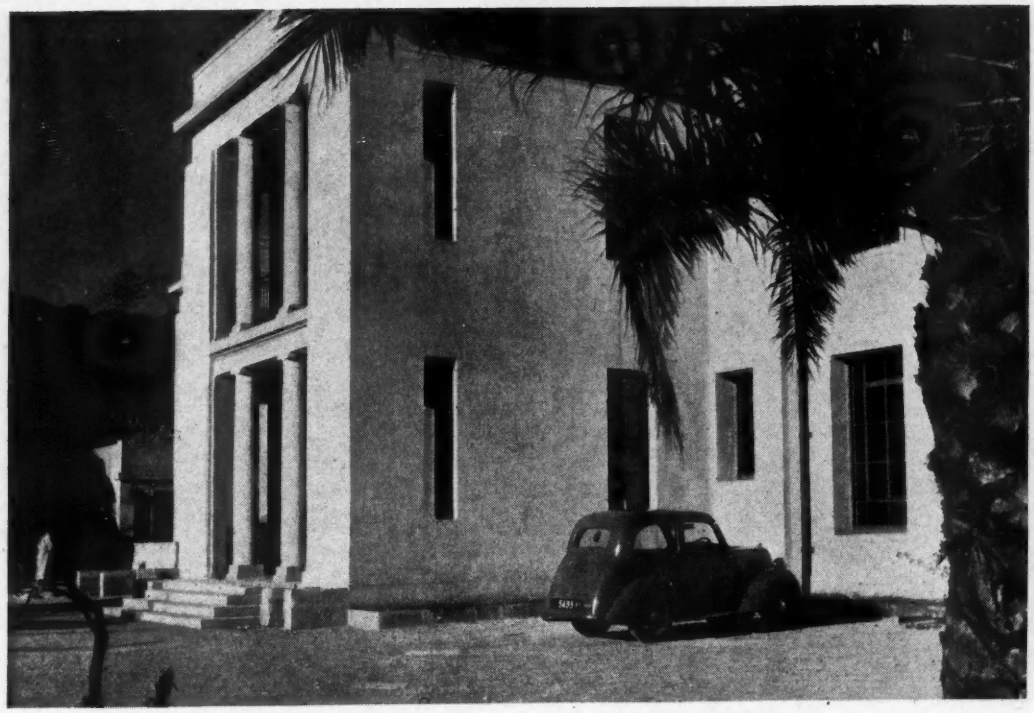
KING GEORGE V MERCHANT SEAMEN'S MEMORIAL HOSPITAL, FLORIANA, MALTA

ADAMS, HOLDEN AND PEARSON, ARCHITECTS

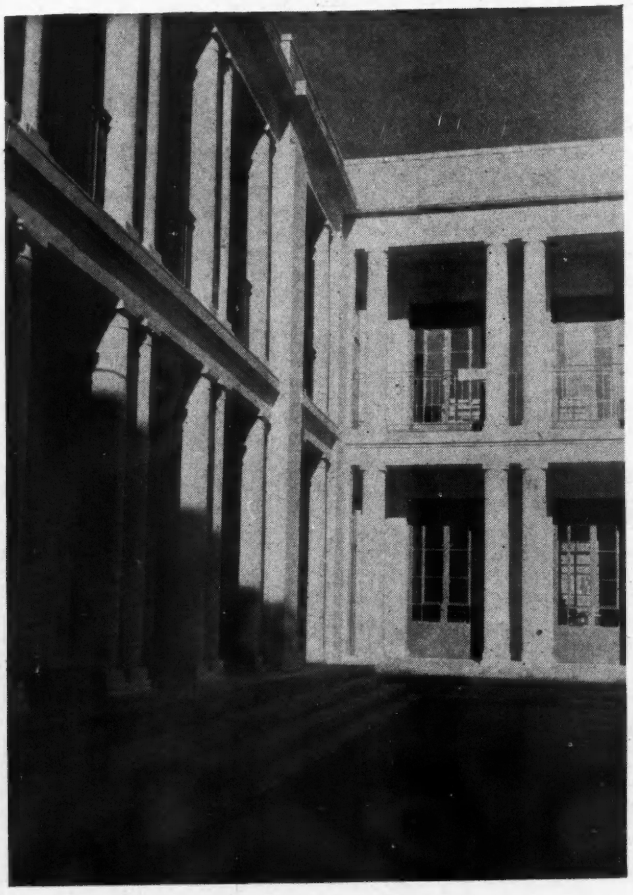


THE new King George V Merchant Seamen's Memorial Hospital, at Floriana, Malta, was opened on November 30 last by Viscountess Mountbatten of Burma, C.I., D.C.V.O., C.B.E. The hospital, destroyed by bombing in 1942, has been rebuilt and the fine white stone building, standing high above the Grand Harbour at Malta, is a landmark to all seamen entering the port. Although the original hospital was almost totally destroyed by bombs, the patients were not injured because they were in the rock shelter at the time. When they came out after the raid they found a mass of twisted steel and broken stones, but the kitchen was still standing with soup hot on the range. The Scottish Branch of the British Red Cross Society financed the rebuilding of the hospital as a tribute to the gallantry of the British Merchant Navy. The new buildings are also to provide accommodation for merchant seamen visiting the island, and will care for the wives and families of service personnel serving in Malta, and also for any other paying patients. The clients required a separate nurses' home.

Site.—The building was restricted to two storeys so as not to obstruct the views of the harbour from the road above the hospital site. All main wards and nurses' bedrooms



Entrance front detail. *Below*: **Ward verandah, facing harbour.**



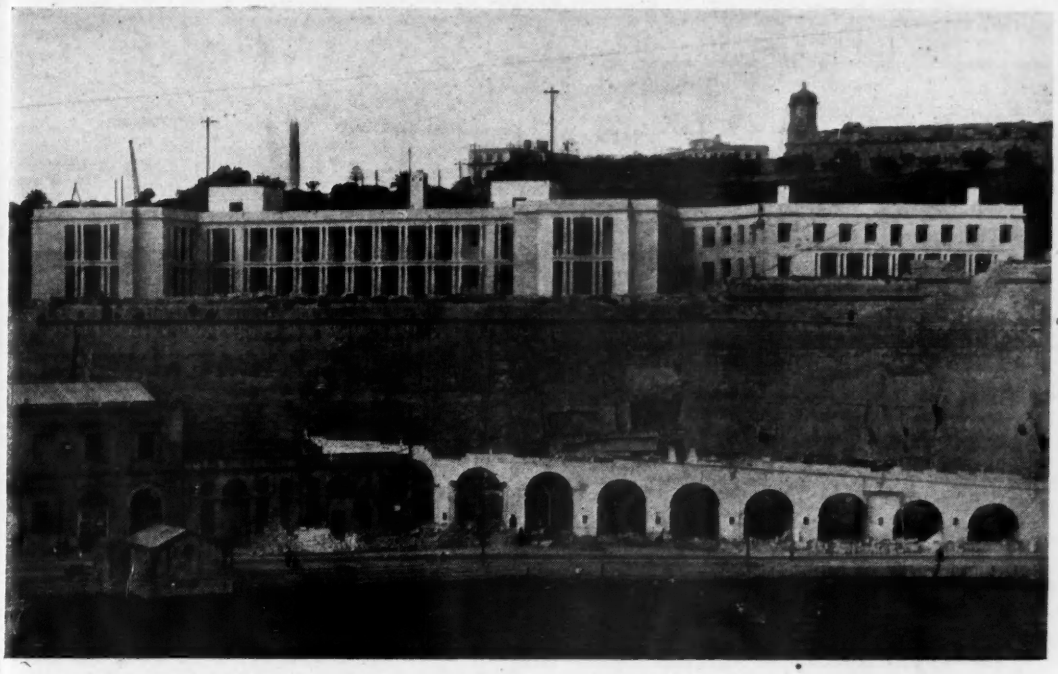
have an uninterrupted view of the harbour and the Mediterranean beyond.

Plan.—The plan form was dictated by the foundations of the old hospital, which, for reasons of economy, were re-used wherever possible. The site of the old hospital was on made-up ground retained by a bastion wall. The old foundations are on rock, which, at the front of the site, is 20 ft. deep. Access to the site is from the west only.

Construction.—The external walls are of solid limestone 2 ft. thick, internal walls 1 ft. thick. The roofs are of R.S.J.s at approximately 3 ft. centres spanned with 3 in. limestone slabs, covered with lime concrete laid to falls. The surface is finished with a local technique of fine pottery chippings run in milk of lime and ironed smooth. The floors are of similar construction to the roof but are finished with terrazzo tiles. A good supply of steel was salvaged from the old buildings, so it was therefore considered more economical to adopt the traditional method of roof construction than to send British specialists to train the Maltese in R.C. work.

Cost.—This worked out at 3s. 8½d. per foot cube for the hospital and 3s. 7d. per foot cube for the nurses' home. Cost per foot square: £3 9s. and £3 6s. 6d., respectively.

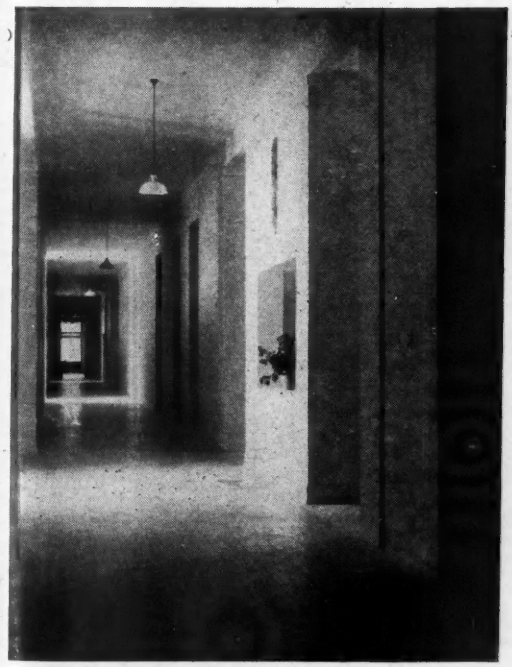
The general contractors were Messrs. John Laing and Sons, Ltd., of London, N.7, and N. Zammit



KING GEORGE V MERCHANT SEAMEN'S HOSPITAL, MALTA: View from harbour.

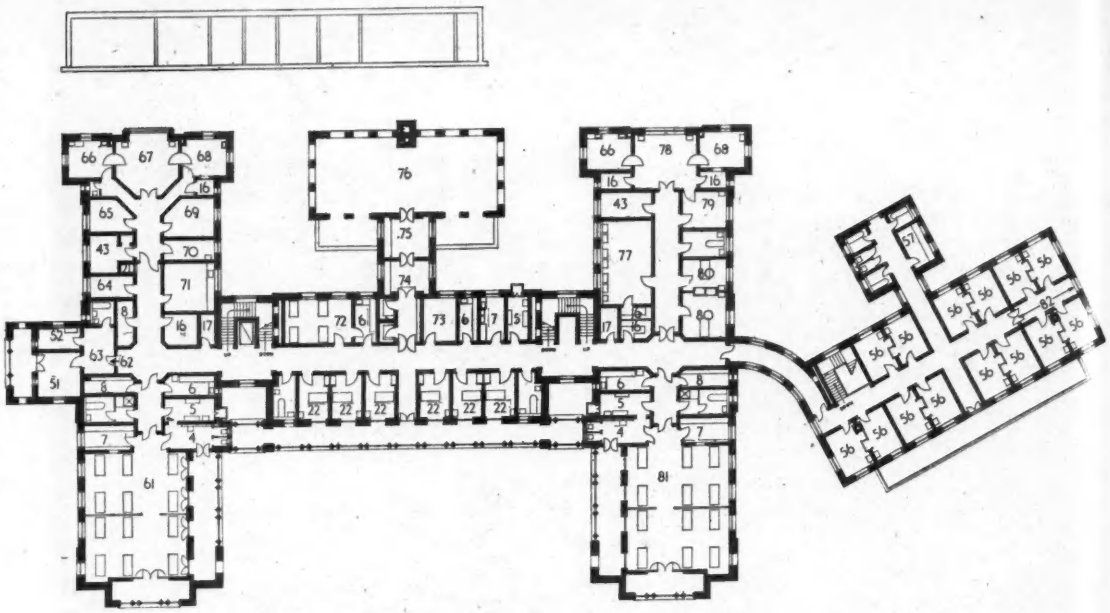
and Son, Malta. Sub-contractors and suppliers were:—

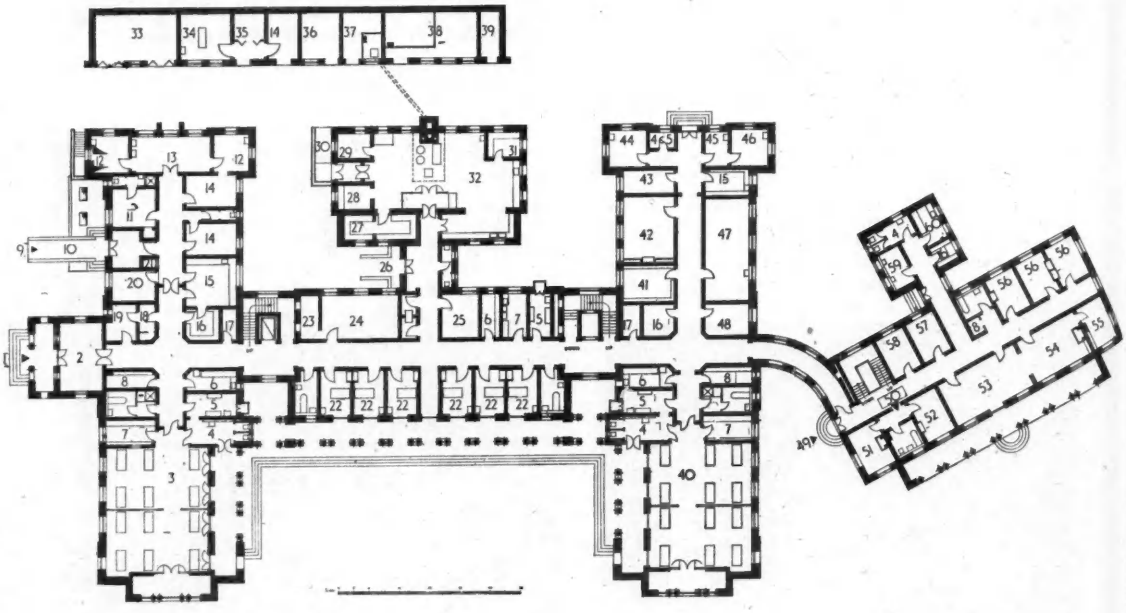
Dampcourses, using Pudlo waterproofed cement, Malta Construction Co.; reinforced concrete, B.R.C.; structural steel, Dorman, Long and Co.; floor tiles, Galea Bros.; glass, Pilkingtons, Ltd.; central heating, G. N. Haden and Sons; oil-fired cooker, Allied Ironfounders; grates, Bratt Colbran, Ltd.; gas fixtures, Malta and Mediterranean Gas Co.; hot water boilers, Ideal; steam boilers, Spencer Hopwood; electric wiring, Electrical Installations, Ltd.; sanitary fittings, W. N. Froy and Sons; door furniture, James Gibbons, Ltd.; casements, Crittall Manufacturing Co., Ltd.; bells, Electrical Installations, Ltd.; wall tiling, H. and R. Johnson, Ltd.; kitchen fittings, Smith and Wellstood; chapel fittings, G. Maile and Sons, Ltd.; lifts, Express Lift Co., Ltd.; water-softening plant, Permutit Co.; signs, Lister Signs, Ltd.



A corridor.

View in 12-bed ward.

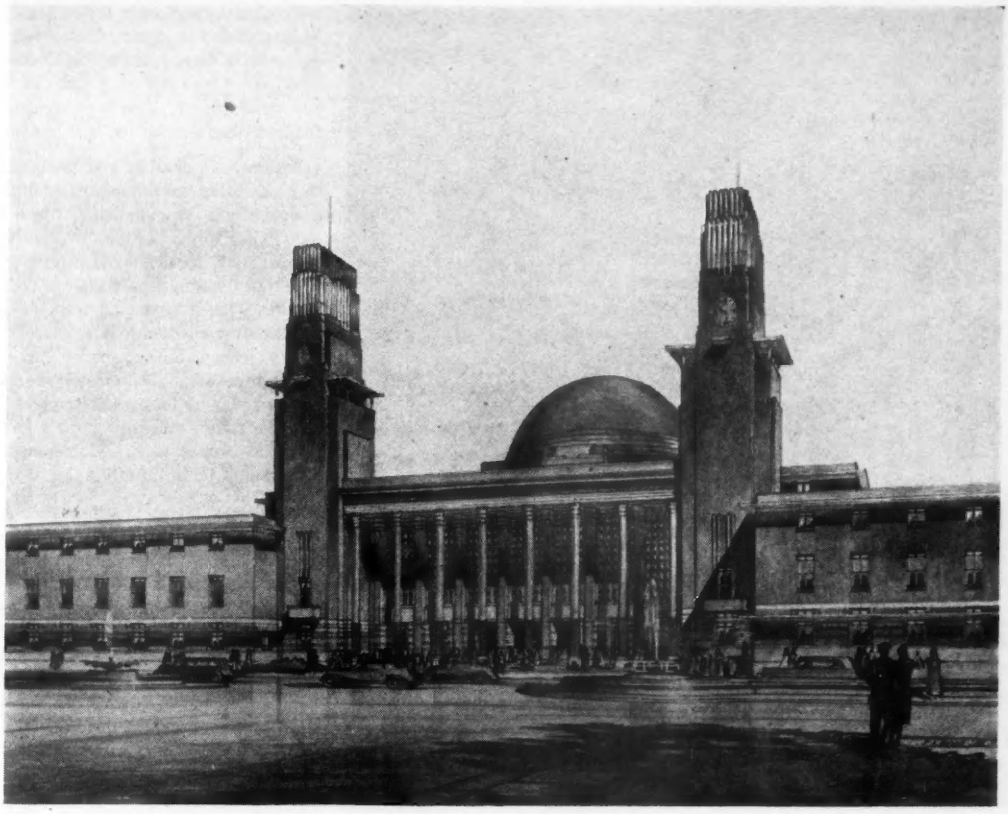




First-floor plan. *Below*: **Ground-floor plan.**

KEY TO PLANS

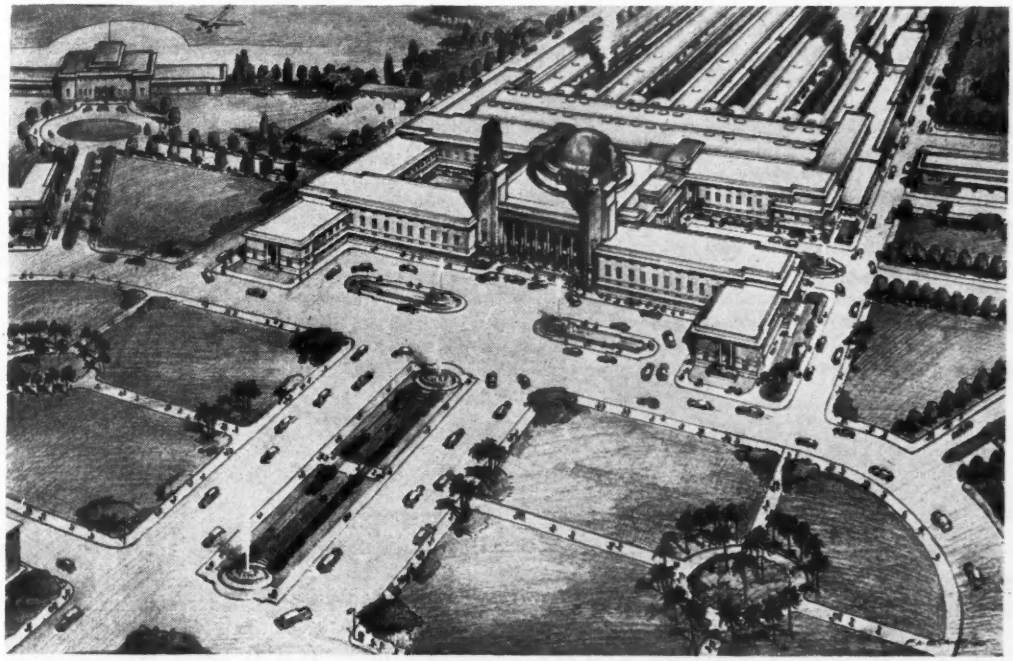
1. Main Entrance.
2. Entrance Hall.
3. Men's Ward (12 beds).
4. Lavatory.
5. Sluice.
6. Ward Kitchen.
7. Duty Room.
8. Linen.
9. Outpatients' Entrance.
10. Stretcher Ramp.
11. Medical Superintendent.
12. Examination.
13. Consulting.
14. Waiting.
15. Dispensary.
16. Store.
17. Patients' Clothes.
18. Telephone.
19. Porter.
20. Secretary.
21. Soiled Linen Chute.
22. 1-Bed Ward.
23. Dark Room.
24. X-Ray.
25. Maltese Staff Dining.
26. Staff Entrance.
27. Dry Goods.
28. Veg. Preparation.
29. Housekeeper.
30. Goods Entrance.
31. Larder.
32. Main Kitchen.
33. Garage.
34. Post Mortem.
35. Viewing.
36. Fuel Store: Oil.
37. Incinerator.
38. Boiler House.
39. Coal.
40. Women's Ward (12 beds).
41. Library.
42. Chapel.
43. Sister.
44. Isolation.
45. V.D. Consulting.
46. V.D. Examination.
47. Rehabilitation.
48. Matron's Office.
49. Nurses' Entrance.
50. Matron's Flat.
51. Sitting Room.
52. Bedroom.
53. Dining Room.
54. Recreation Room.
55. Quiet Room.
56. Nurse's Bedroom.
57. Pantry.
58. Changing and Rest Room.
59. Shampoo Room.
60. Cleaners.
61. Surgical Ward (Men).
62. R.M.O.'s Flat.
63. Hall.
64. Staff.
65. Anaesthetic Room.
66. Sink Room.
67. Operating Room
68. Sterilising Room.
69. Surgeon's Room.
70. Changing Room.
71. Clinical Laboratory.
72. Children's Ward.
73. Visitors' Room.
74. Sewing Room.
75. Laundry.
76. Covered Airing Space.
77. Nursery.
78. Labour Room.
79. Ante-Natal Room.
80. 1 Bed—Maternity.
81. Maternity Ward.
82. Night Nurses.

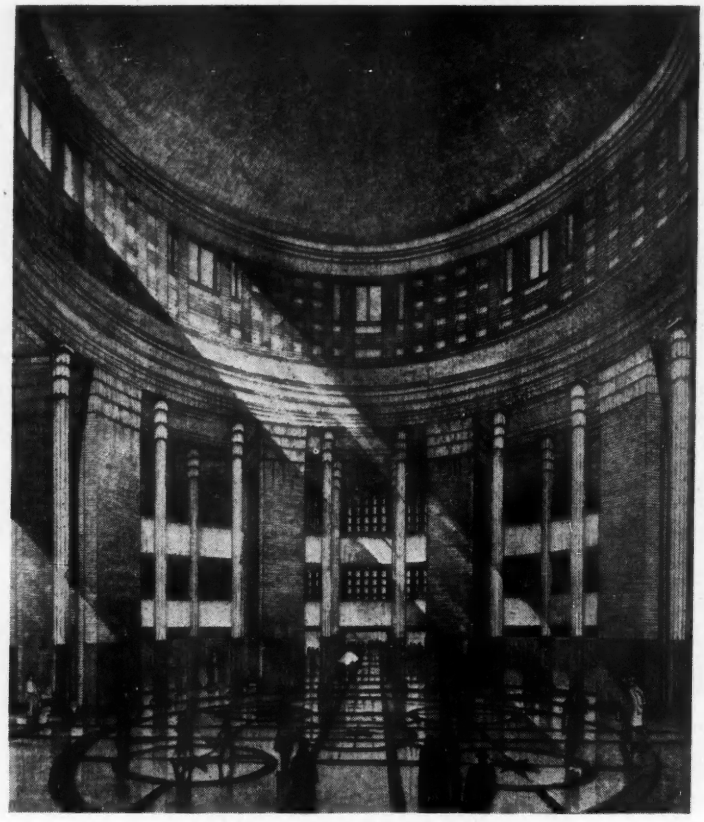


The entrance front. *Below :* **Bird's-eye view.**

BAGHDAD RAILWAY STATION

J. M. WILSON, A.R.I.B.A., AND H. C. MASON, F.R.I.B.A., ARCHITECTS





The booking hall.

ONE of Germany's dreams before the 1914-18 war was the construction of a railway from Berlin to Baghdad, the Kaiser having the ambition to introduce German influence to some point in the Eastern Hemisphere where it could counter the British influence in India and the East. A considerable part of this railway was built, including about 60 miles from Baghdad in the direction of Istamboul. The 1914-18 war saw the destruction of his hopes. The British Army, in advancing up the Tigris and Euphrates, constructed a railway which ultimately linked Baghdad with the Persian Gulf.

In the space between the wars and during the last war the missing links in this railway were connected and it is now possible to run through from Haidar Pasha at Istamboul to the Persian Gulf at Basra. Under the wise administration of the present Government of Iraq, railway development has been greatly encouraged and certain loop-lines and branch lines have been built or are in course of construction to-day. The heart of the railway system is in Baghdad, and for many years the whole of the railways administration has been housed in temporary or semi-permanent buildings.

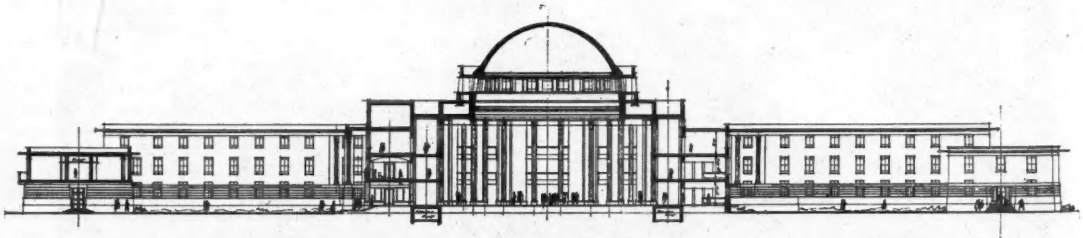
Before the last war, schemes were prepared for a railway station at Mosul and for a large railway station and railway directorate offices in Baghdad. During the war the Mosul station was completed and recently work has been started on the construction of the station and headquarters in Baghdad. The railway building, which is a terminal station, occupies a very important architectural position in the replanning of Baghdad. In front of it there is designed a large piazza from which runs one of the main axial roads of the new development. This is indicated on the bird's-eye view of the new building.

Indigenous materials and craftsmanship are being employed to the fullest extent in the new building, which is built principally of a pleasant primrose-yellow brick, locally made, with white limestone dressings. The style of architecture, while introducing the features and advantages of the West, retains a strong feeling of the native art of the Middle East. A completely modern building would look out of place in Baghdad; any slavish copying of a departed Saracenic or Mohammedan style would be an anachronism.

The main features will include an extensive booking hall, surmounted by a large dome 70 ft. in diameter. The building covers an area of approximately 245,000 sq. ft. with gardens laid out in the approaches and quadrangles. Two towers, 106 ft. high, dominate the front elevation. In addition to the large block of administrative offices provided in the building, there will also be a private suite for the use of the Regent and other important persons. Local bricks and Mosul stone will be used for the external walls, the main hall being lined with Ashburton marble. The floor will be paved with Sicilian marble, Roman stone and Belgian granite in traditional patterns. The building has all the modern facilities in the way of sanitation and will be completely air conditioned. A controlled internal temperature with a controlled degree of humidity will be provided no matter what the external temperature may be, and there will be cooled water for drinking.

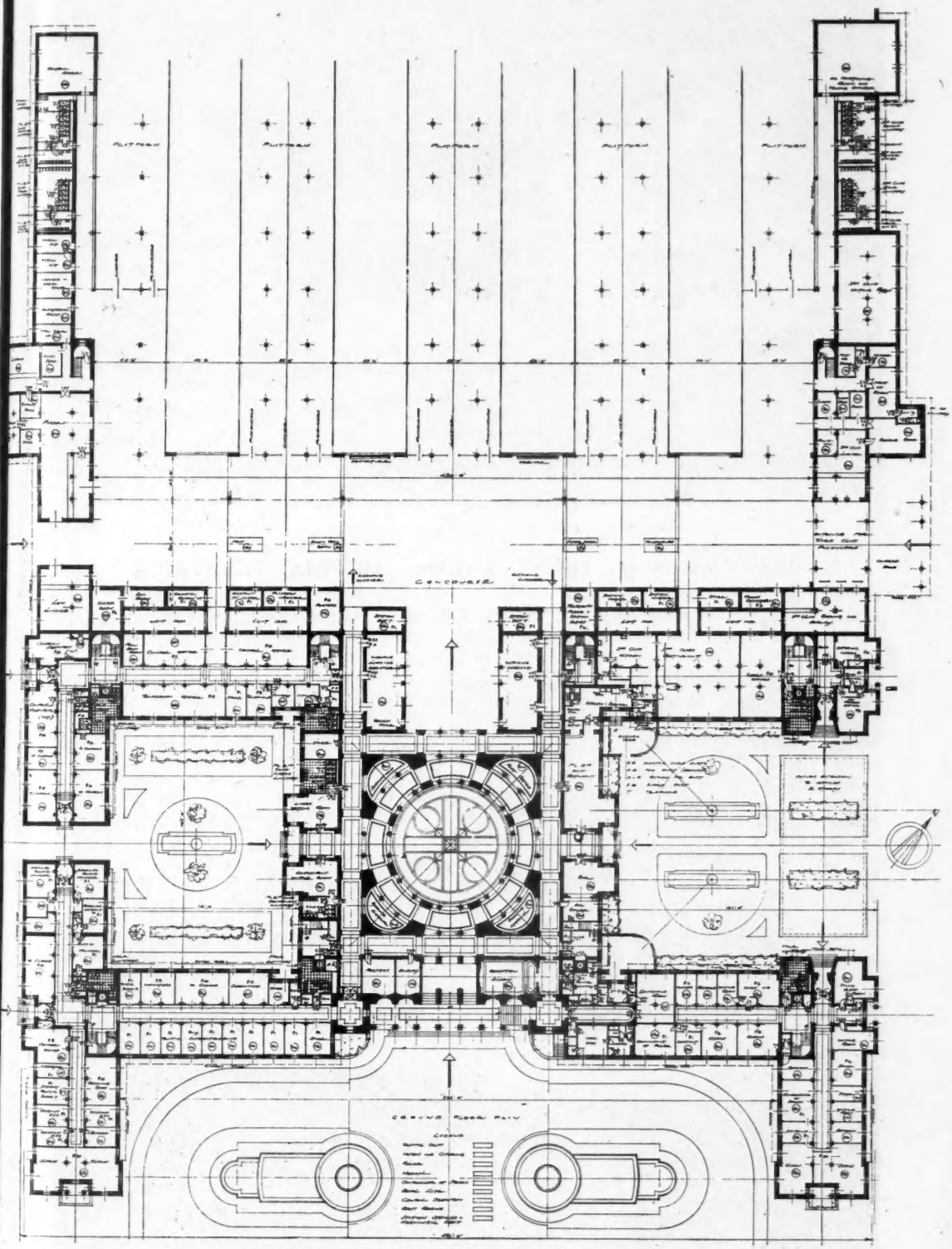
The quantity surveyors are Messrs. Langdon and Every, FF.R.I.C.S. The general contractors are Messrs. Holloway Bros. (London), Ltd.

The following are among the principal sub-contractors or suppliers: Structural steel, Aston Construction Co.; precast concrete floor units, Rapid Floor Co.; reinforcing material and fabric, Twisteel Reinforcement Co., Ltd.; metal windows, doors and glazed metal partitions, Crittall Manufacturing Co., Ltd.; wrought-iron doors and grilles to windows, Adrian Stokes,

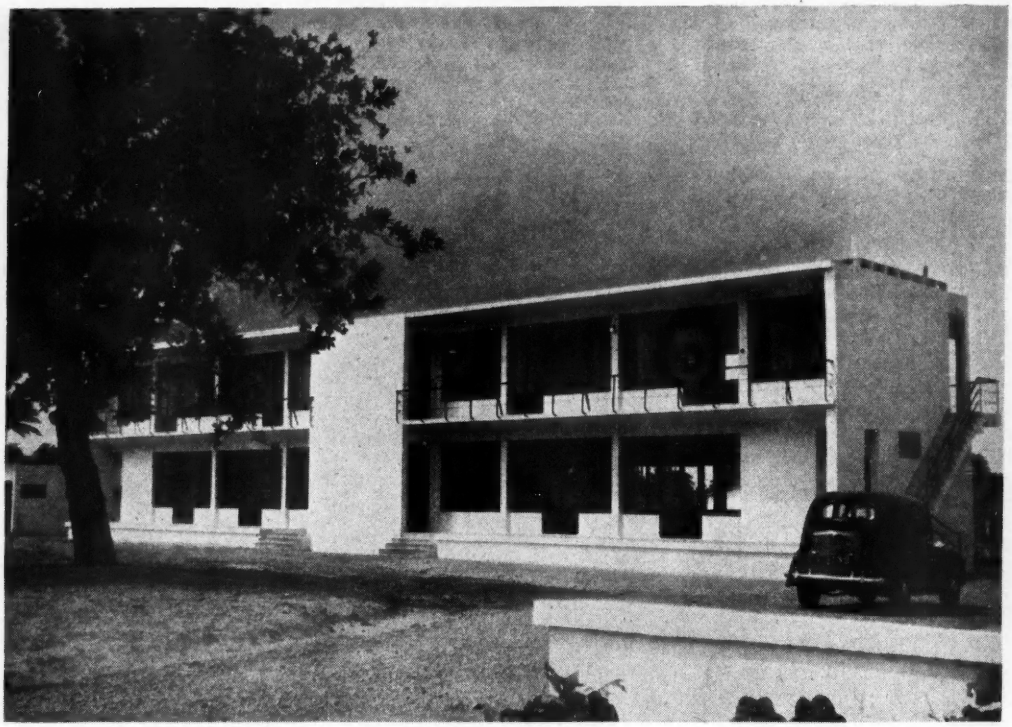


BAGHDAD RAILWAY STATION. Cross-section through courtyards.

Ltd.; heating and air conditioning, G. N. Haden and Sons, Ltd.; prefabricated plumbing and drainage materials, Matthew Hall and Co.; sanitary fittings, Twyfords, Ltd., and Doulton and Co., Ltd.; lifts, Gimson and Co. (Leicester), Ltd.; marble paving and wall linings, J. Whitehead and Sons, Ltd.; electrical materials, General Electric Co., Ltd.; transformers, Metropolitan Vickers, Ltd.; roller blinds to windows, J. Avery and Co.; rolling shutters, Haskins, Ltd.; flue lining materials, Moler Products, Ltd.; louvred metal air inlets, Fredk. Braby and Co., Ltd.; strongroom doors, Milners Safe Co., Ltd.; glazed screens, Morris Singer Co.; false ceilings, Trussed Concrete Steel Co., Ltd.; air conditioning in basement, Benham and Sons, Ltd.; electric clocks, Synchronome Co., Ltd.; fibre duct system, Key Engineering Co., Ltd.; collapsible gates, balustrades, Bostwick Gate Co., Ltd.; and glazed wall tiles, Carter and Co. (London), Ltd.



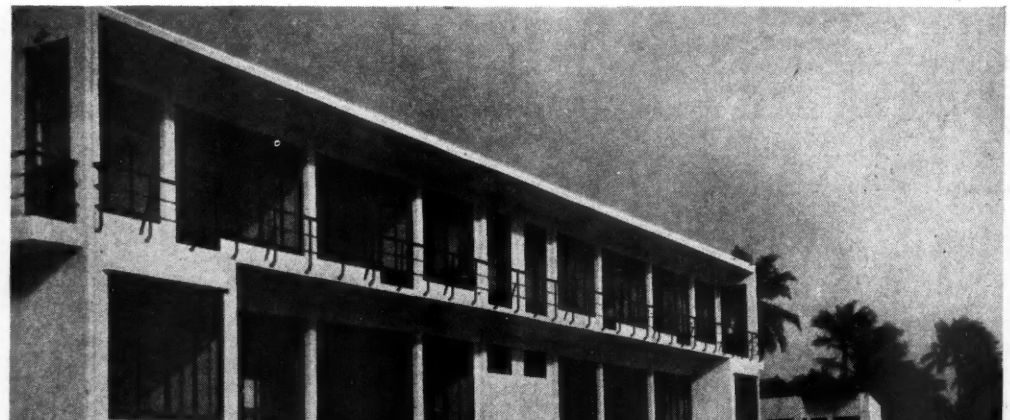
BAGHDAD RAILWAY STATION. Ground-floor plan.



The entrance front. *Below :* **The rear elevation.**

RESIDENCES AT IKOYI, LAGOS, NIGERIA, W. AFRICA

EDWARD D. MILLS, F.R.I.B.A., ARCHITECT



RESIDENCES AT IKOYI, LAGOS, NIGERIA. A lounge.

THE residences illustrated have been erected at Ikoyi, the residential district on the outskirts of Lagos, Nigeria, for the European staff of May and Baker, Ltd. The site is level, and the buildings have been designed to take full advantage of the prevailing winds. All rooms open on to deep verandahs or terraces on two sides, and, in order to provide permanent ventilation, all windows are fitted with louvres at high level. The scheme includes boys' quarters for each of the residences, together with garages and a private sewage disposal plant.

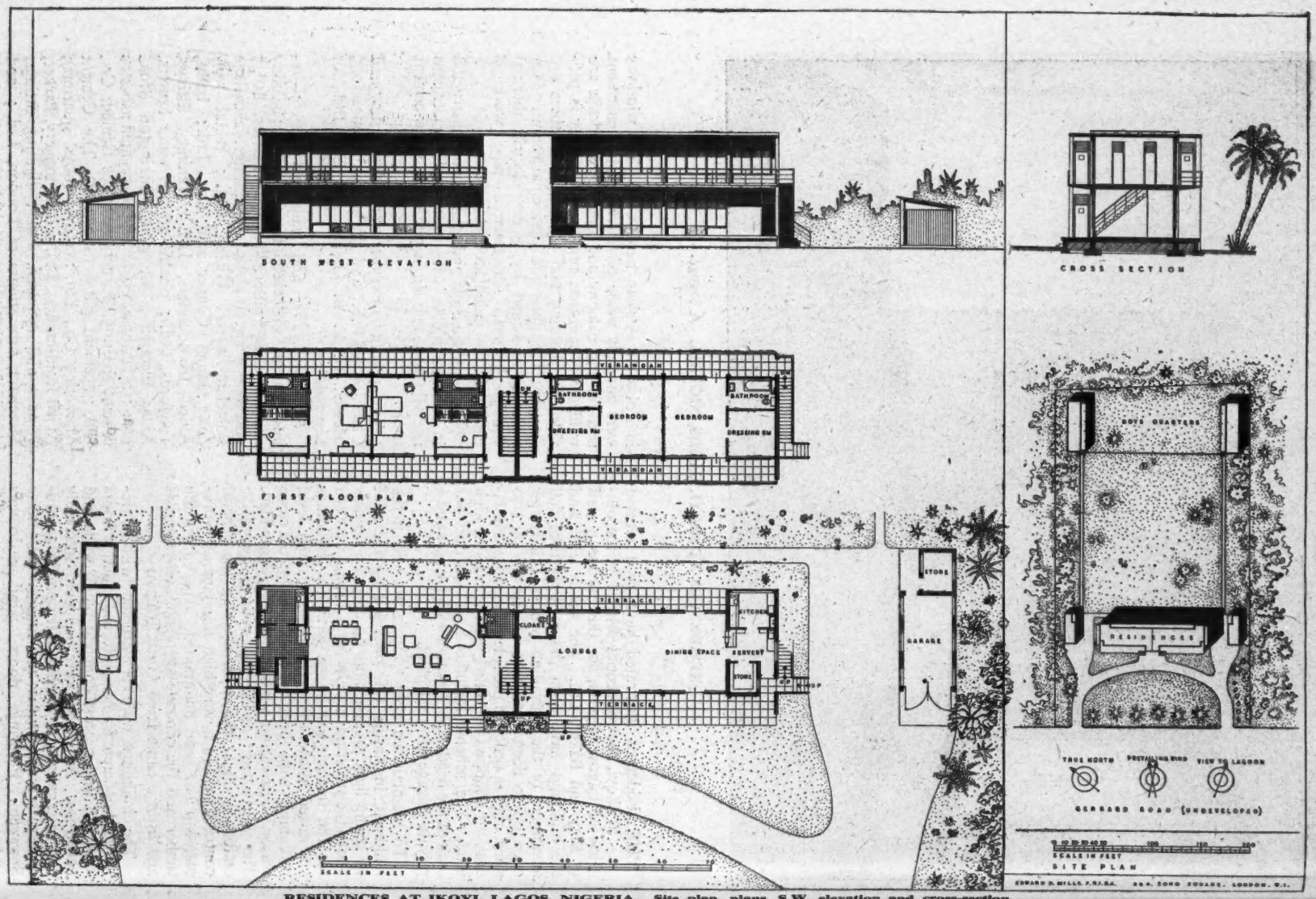
To maintain an even temperature within the buildings, insulation was provided on the roof by laying light precast units on concrete sleepers above the structural slab, leaving a space between for the free circulation of air. The buildings are raised above the surrounding ground level to comply with local bye-laws, and for the same reason no rainwater pipes or gutters are provided. The work was carried out entirely by native craftsmen under the supervision of the general contractors, and a very high standard of workmanship has been maintained. Apart from the timber and the concrete aggregates, all materials and fittings came from Great Britain.

The buildings were constructed with a reinforced concrete frame, reinforced concrete floors and roof and precast concrete block walls and partitions. All walls were rendered internally and externally with cement and sand in accordance with local practice, and finished with white Snowcem. Flooring, doors, window louvres and outer frames, stairs and other joinery are in iroko, an African hardwood. The windows were specially made of universal steel casement section, and balcony and staircase handrails are welded wrought-iron tubing. Electricity is provided for lighting and cooking, and there are electric ceiling fans in all principal rooms. Hot water is provided by Sadia electric thermal storage heaters. All internal pipe work is carried in concealed accessible ducts.

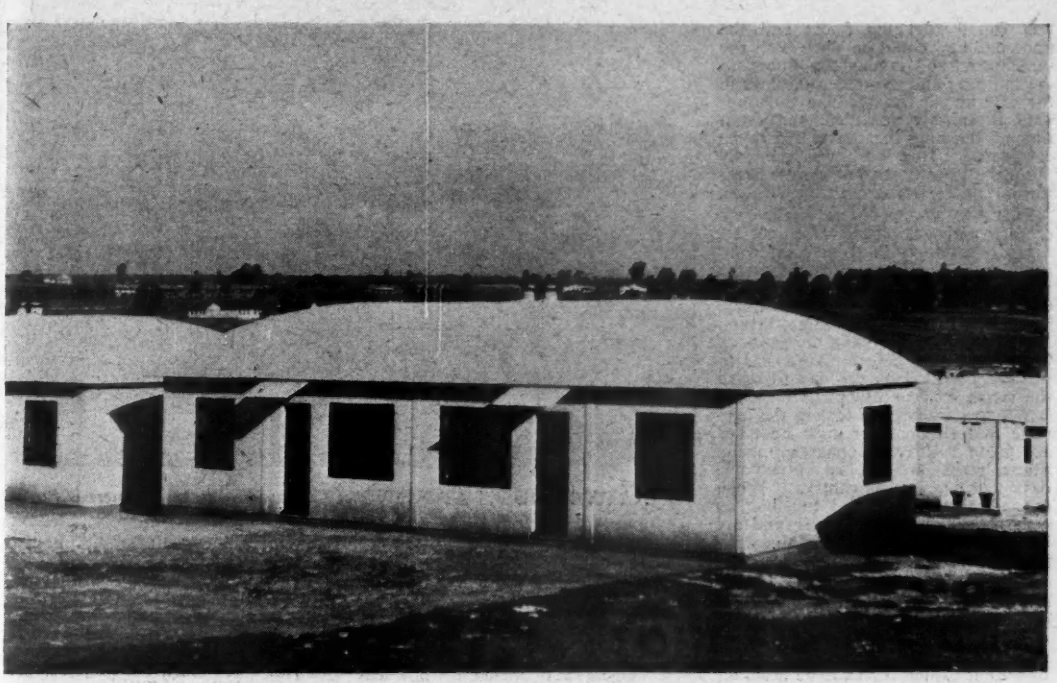
The boys' quarters and garages are constructed in concrete blocks with hardwood roof trusses and windows, and single-pitched asbestos cement roofs.

The quantity surveyors were Messrs. Lay and Clark, A/A.I.A.S., and the general contractors, Messrs. H. E. B. Greene and Co., Ltd., of Liverpool.

Sub-contractors and suppliers were :—reinforcement, Twisteel Reinforcement, Ltd.; balcony and stair handrails, Allen and Greaves, Ltd.; porcelain enamel sinks and fittings, Easiclene Porcelain-Enamel (1938), Ltd.; metal windows, James Couper and Co., Ltd.; baths, Allied Ironfounders, Ltd.; sanitary fittings, Twyfords, Ltd.; electric storage water heaters, Aidas Electric, Ltd.; glass, Pilkington Bros., Ltd.; asbestos soil pipes and corrugated asbestos cement sheeting, Turners Asbestos Cement Co., Ltd.; cement paint (Snowcem), The Cement Marketing Co., Ltd.; stoves (boys' quarters), Allied Ironfounders, Ltd.; ironmongery, Parker, Winder and Achurch, Ltd.; lighting fittings, Merchant Adventurers of London, Ltd.; and electric wiring, fans, etc., United Africa Co., Ltd.



RESIDENCES AT IKOYI, LAGOS, NIGERIA. Site plan, plans, S.W. elevation and cross-section.



A view of completed houses.

NATIVE HOUSES AT KLIPSPRUIT, SOUTH AFRICA
for the Johannesburg City Council

THIS contract for the Johannesburg City Council, which is being carried out by Messrs. Laing and Roberts (Pty.), Ltd., of Johannesburg, is one of many native housing contracts throughout the country, and comprises the building of 1,700 blocks each of three family units, providing 5,100 homes at a cost of about £2,000,000. The site is situated approximately 12 miles west of Johannesburg, and the scheme has been put in hand to alleviate overcrowding in near-by native locations.

THE SITE.—The contractors took over this site, an area of nearly 1,500 acres of open veld on the farm Klipspruit, west of Orlando and north of Moroka, at the end of October, 1947, the council surveyor having previously set out the plots for the blocks, which were marked by ½-inch steel pins. The compound, offices and stores were built during the first week or so, but when general excavations commenced the ground was found to be so sun-baked that it had to be soaked with water. When this was done, no pick was necessary, and it was found that a boy digging with a spade could turn out up to ¾ cu. yd. per hour. Many difficulties had to be surmounted before the scheme could be started, such as getting a priority allocation for cement and steel at a time of great scarcity of building materials.

UNDERBUILDING.—The shuttering for underbuilding is 6 inches high and is made in two sections, each section being the shuttering round half of the block. When erected, these two sections are bolted together and when stripping, the bolts are removed and one section is lifted bodily by 22 natives and transported to the next block. By September, 1948, underbuildings for 500 blocks had been completed.

The floors, which are 3 inches of No Fines concrete, covered with ½-inch sand and cement, followed. It

Putting in the foundations.

was found that the floors and the underbuilding could be done with the same mixer by laying the floors in the morning and the underbuildings in the afternoon. As the native labour used is entirely unskilled, the question of finishing the floors had to be considered. This work was done by pulling a 12-inch strip of canvas backwards and forwards over the surface.

PRECAST WALLS.—The walls are precast and are constructed of No Fines concrete with ¼-inch layer of sand and cement on either side, the external walls being 6 inches thick, and the internal walls 4 inches thick. The slabs are cast in three layers; the first on the floor, the next two on top of the one before. Work has to proceed on 12 slabs per day to reach the target of four blocks.

Window frames are cast in the concrete and shutters for door openings are made to leave a concrete rebate. These walls are erected, after five days curing, by a gantry. When erected, they are joined together by concrete columns cast *in situ* and are tied by reinforcement left in the walls for this purpose.

CONCRETE ROOF.—The roof is constructed of 2-inch reinforced concrete cast *in situ*. Reinforcement consists of welded mats of ¼-inch mild steel rod spaced at 3½-inch centres, an operation calling for extreme accuracy of workmanship.

All the reinforcement is prefabricated in the contractors' compound, where there are employed four welding plants for roof steel and approximately 30 boys cutting, bending and preparing all other steel. Eight tons of steel has to be prepared per day, while all ¼-inch reinforcement, which is delivered in coils, has to be straightened before it can be cut and bent to the required lengths. Upon completion, the walls are brushed down and the houses sprayed with two coats of lime wash, inside and out.

Tradesmen or artisans are scarce, but 90 per cent. of the work can be done by native labour, of which there is no shortage. Labour strength is approximately 400 natives and 40 Europeans, and the weekly target is 20 blocks, equal to 60 houses. This is usually reached unless materials hold up progress.

NATIVE HOUSES AT KLIPSPRUIT. Laying the base concrete.

HOUSING IN SOUTH AFRICA

A Major Problem

HOUSING remains a major sociological and industrial problem in South Africa, in spite of the severe brake that has been put on the inflow of immigrants due to the Government's "screening" activities. In Johannesburg there are some 12,000 names on the waiting list for homes while the smaller centres, such as Bloemfontein, report a proportionately similar state of things. But bad as the situation is for Europeans, it is even worse for non-Europeans.

It is considered by some that the 90 per cent. Government-assisted loan scheme has failed and that the National Housing and Planning Commission, which started operations in September, 1945, does not appear to have the confidence of the building societies.

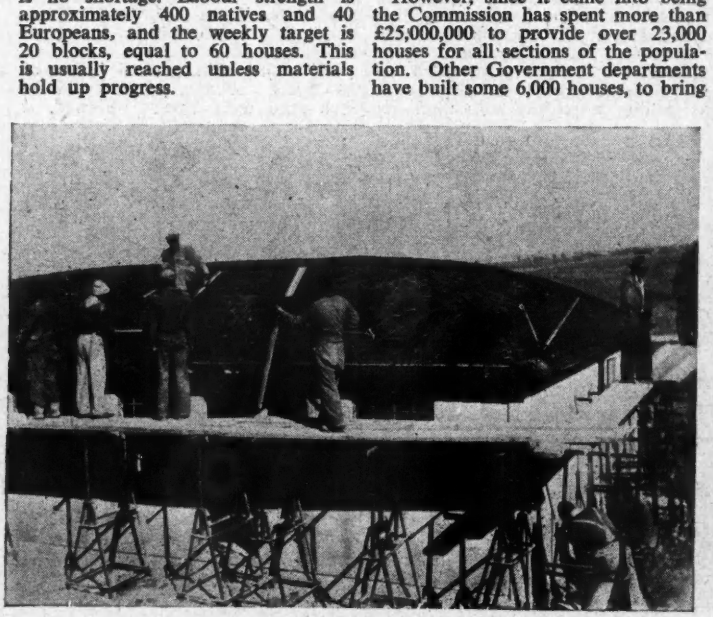
However, since it came into being the Commission has spent more than £25,000,000 to provide over 23,000 houses for all sections of the population. Other Government departments have built some 6,000 houses, to bring the total number of families housed last year to 30,000.

All building records in Johannesburg were broken in a month towards the end of last year, when more than 700 plans for buildings worth £1,429,000 were approved by the City Council. It must, of course, be remembered that building costs have soared since 1937 and are still rising, but building plans are being submitted at an ever-growing rate.

Although prices are high (it is virtually impossible to build a house to-day with the maximum amount of £2,800 available under the Government-assisted loan scheme, for even a modest house costs nearly £4,000 to build) it is considered that it is more likely that there will be a slowing down of building activity as a result of the shortage of building materials, particularly cement. Earlier, when there was a shortage of bricks, builders overcame the situation by using cement, but with the present shortage of even this basic material building progress is suffering. According to one report newcomers to the building industry are having difficulty in getting the bricks required.

Difficult though the materials situation is, the long-term problem is providing the houses required. Things have not been assisted by a decision of the Government to stop the training of natives as builders. Commenting upon this recently, Major P. V. G. van der Byl, former Minister of Native Affairs and now a member of Parliament, said: "Not for many years can European artisans build the houses required for the European population and they are quite incapable in our time of coping with the requirements of non-Europeans."

The opinion is widely held that if native houses (plus development) were to cost £800 to 1,000, as proposed by some municipalities, then enough money would never be available to make more than a token attempt to house native workers. It would appear that a practical answer to the housing problem lies in a realistic acceptance of the fact that native housing does not demand the structural criterion at present considered essential for European housing. The same degree of skill not, therefore, being necessary, native artisans can accordingly do the work under European supervision.



Roof shuttering and reinforcement.

DOMINION & COLONIAL DEVELOPMENT

News of Building Resources and Trade

Nigerian Public Works

REVIEWING estimates for the financial year 1949-50 at the Budget session of the Nigerian Northern House of Assembly, which met at Kaduna on January 6 and 7, the Regional Financial Secretary, MR. A. J. KNOTT, said that the grand total of estimated expenditure amounted to £4,200,000, an increase of £1,000,000 over the estimates for the current year. Half of this increase will be spent on development and social services and half on further public works. Thus a total of £1¼ million will be spent on development and social services, another £1¼ million on public works, and rather more than a half a million will go to administration on which expenditure will fall from 20 to 14 per cent. of the total revenue.

The total outlay of £4,200,000 comprises £2,700,000 allocated to the Regional Budget by the Central Government and £1,500,000 from the central Development and Welfare Estimates which are based on the funds available under the Ten-Year Plan. Of the Budget allocation, a total of £1,375,000 is to be spent on education, health and economic services and £1,305,000 on administration and public works, leaving £20,000 as a margin for unforeseen expenditure.

The sum of £1,500,000, which is provided under the Development Estimates for the North, will be used to finance projects which come within the scope of Nigeria's Ten-Year Development Plan, and is in addition to ordinary regional expenditure. The main item will be one of £1,000,000 towards a public works programme involving an expenditure of £400,000 on buildings and about £300,000 each on roads and water supplies. The remaining £500,000 will be spent on education and medical services, agriculture, forestry and veterinary development, electricity services, town planning and village reconstruction.

Forestry Resources in the Gold Coast.

One of the most rapid developments in the whole field of Gold Coast production is taking place in the local timber industry. The forest resources of the country are, after cocoa, now one of the territory's major economic assets. Recent developments in this field are reviewed in the Annual Report of the Gold Coast Forestry Department for the year 1947-48, which also gives figures of the value and amount of marketable logs and timber produced in the above period. Exports of logs and sawn timber amounted to 5,738,000 cubic feet valued at £1,607,578 compared with 4,310,272 cubic feet at £942,125 in the previous 12 months. No separate figures are available for the total output of logs but the 13 operating sawmills produced 1,432,562 cubic feet of lumber, 900,000 cubic feet of which were consumed locally. The chief export markets were the United Kingdom and the United States; the former taking just over half and the latter just under half the total. Most of the timber hitherto exported has come from "salvage" fellings on land which the Forestry Department scheduled for conversion to agriculture, but now large concessions are being worked, on a controlled yield basis, on unreserved areas.

In the course of 1947-48 three new sawmills were under construction at Takoradi, Oda and Mim to cope with the expanding demand for sawn timber. This marked increase in industrial growth is mentioned in the Annual Report on the Gold Coast for 1947, which says that timber promises shortly to challenge minerals as the second most important export of the Gold Coast.

Trade with Canada.

The Report of the United Kingdom Engineering Mission which visited Canada last Autumn was recently issued by His Majesty's Stationery Office, and provides evidence of the practical efforts being made, both in official quarters and by private firms, to promote sales in the Canadian market in order that trade between the two countries may be maintained at the highest possible level. At a Press conference in London Mr. Strauss declared, on behalf of the Government, that all assistance would be given to firms which had contracts with Canada and that, in the fixing of steel allocations, account would be taken of firms' previous records in exports and their potential for the Canadian market.

In making a general survey of the means by which United Kingdom exports to Canada could be promoted, the United Kingdom Board of Trade has noted that, although Canada has a virile and growing engineering industry which imports at least £100 million worth of capital equipment a year, only a very small proportion of this equipment came from the United Kingdom.

The value of personal contact with potential Canadian buyers has already resulted in valuable orders for special types of electrical generating plant being placed with United Kingdom manufacturing firms in the face of strong American competition.

Australian Steel Works.

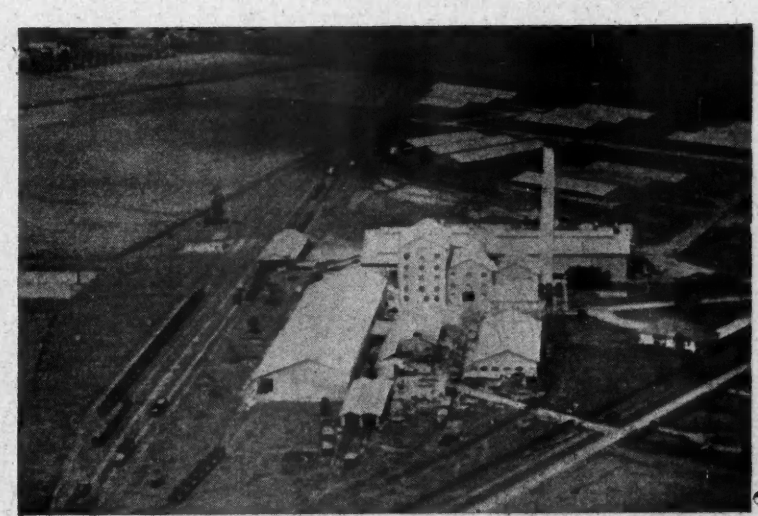
The Broken Hill Proprietary Co., Ltd., Australia, is to establish an integrated steelworks at Whyalla. The project, which includes coke ovens, blast furnaces and open-hearth steel furnaces, will take several years to complete. Another post-war project is the early construction of a continuous hot and cold steel mill at Port Kembla, to produce commercial black steel sheets, steel for the motor car and refrigeration industries, and tin plate in sufficient quantity to meet Australia's own requirements and provide a surplus for export. Some of the allied companies of Broken Hill Proprietary have also announced their development plans. At Newcastle, a new continuous weld pipe mill for the production of black, galvanised and steam pipe is being constructed, while a new sheet mill is in course of construction at Sydney. There is every prospect of a further rapid expansion of the Australian iron and steel industry, provided that sufficient labour can be attracted into the coal mines and steel plants to make such a development feasible.

Development in Cyprus.

The Cyprus Development Plan, for which expenditure is estimated at £825,000 for 1949, is financed by £1¼ million allocated under the Colonial Development and Welfare Act of 1945, and more than £1¼ million provided by revenue resources in Cyprus. There is a separate development budget, and separate development estimates are prepared annually. By the end of 1948, £1,178,036 had been spent.

Irrigation is another important aspect of Cyprus's Development Plan; £314,000 has been spent up to date, and £133,000 is allocated for 1949.

About £50,000 has been spent on educational development projects so far, and £116,000 is budgeted for 1949. Plans for the extension of the Teachers' Training College have been approved and work will start shortly; a scheme involving the building of elementary schools in 23 villages has been approved and work has already begun. The Government scholarship scheme initiated to train Cypriots for posts of higher responsibility is continuing satisfactorily, and 16 scholarships for University education abroad were awarded during 1948.



BRECHIN CASTLE SUGAR FACTORY, TRINIDAD. This new factory has recently been built in Trinidad by Caroni, Ltd., a subsidiary of Messrs. Tate and Lyle, Ltd., who have developed satisfactory methods of drying and baking bagasse, the fibre from sugar cane used for conversion into fibre board. Until three years ago all bagasse was imported from the U.S.A., but now the Trinidad product supplies this country's needs.

CORRESPONDENCE

[Whilst we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

Functionalism and St. Paul's.

TO THE EDITOR OF *The Builder*.

SIR,—I took the advice given in the leading article of your issue of April 15, and over the Easter holiday re-read Mr. Howard Robertson's lecture on "The Seven Vamps of Architecture" with much pleasure and profit. I was particularly interested in his sixth fallacy, *That there should of necessity be a direct and true relation between exterior and interior*, and his refutation of this by reference to St. Paul's Cathedral. "We see," he said, "that the internal dome is proportioned for its interior, but that for external effect the outer dome has had to be built up in order to dominate. It is, to the purist, a fake. And what of the screen walls to the aisles, which conceal the buttresses? They are a device to conceal a not too palatable truth. But no more so than a parapet which conceals vent shafts, skylights, lift machinery, cisterns and so on at the top of a modern building; or the circular and ovoid drums which are so fashionable at the skyline summit of ultra-modern buildings."

I thought it would be instructive to see what St. Paul's looked like stripped of its "fakes," and for the interest of your readers I enclose two rough sketches made from an air view, one (A) showing the Cathedral as it is, and the other (B) as it would appear if the screen walls and flying buttresses were removed from the body of the church, together with the drum wall, the brick cone, the timber framework and the outer lead covering of the cupola. As seen from the air, I think it will be agreed that the appearance of (B) is by no means unattractive. The internal functional dome, now revealed, would, of course, be invisible from any near point of view at ground level, and if it had been adopted as the external covering the whole dome area would have had to be remodelled and the fine peristyle probably abandoned. There can be no doubt, therefore, that Wren was right in building up the outer dome in order to dominate. But what of the main body of the Cathedral? Can it be denied that without the screen walls the true geometrical forms of the building are much more interesting and impressive than those which are apparent to the eye from ground level?

I know, of course, that the screen walls, besides hiding the flying buttresses, give added stability and strength to the whole structure, but I cannot believe that Wren, inventive genius that he was, could not have secured these ends by invisible or other means; we have only to think of the brick cone and the chain girdle buried in the drum of the dome to appreciate that. No; I believe there is another explanation.

St. Paul's in its plan shape—that of a Latin cross—is essentially a Gothic building. In construction, too, it is mediæval—witness the walls and piers with their ashlar casing and rubble core, and also the flying buttresses. Wren was no lover of Gothic, and in his report on the rebuilding of the Cathedral after the Fire he urged that the work should be carried out "after the good Roman manner." He must have realised that his design, in plan, was essentially Gothic, and I believe that he introduced the screen walls to hide this, to him, unfortunate fact. With the aid of these screens he certainly succeeded in building up impressive Classical frontages, but at the expense of elevational truth and, as it may be argued, to the detriment of the external appearance. I wonder whether your readers agree?

HARI BONA.

Education of the Builder's Foreman.

TO THE EDITOR OF *The Builder*.

SIR,—I also agree with Mr. Hughes that your leading article on this subject (April 8) is timely, in fact it could only have been more so if it had been published two years ago, the time when members of the London Association of Builders' Foremen and Clerks of Works were hard at work in collaboration with Professor Mace of the Building Research Unit formulating the report containing suggestions for training, which was published in your excellent journal on September 5, 1947.

After the publication of this report the N.F.B.T.E. invited this Association and the one of which Mr. Hughes speaks to co-operate with them in the production of a further report which was published in July, 1948, and is known as the N.F.B.T.E. Report on Training of General Foremen. When the delegates of this Association met the N.F.B.T.E. Committee, they were present as representatives of the National Federation of Clerks of Works and Building Foremen's Associations of Great Britain, a body which has been in existence for more than 25 years. This federation comprises the only known *Associations* of Builders' Foremen and Clerks of Works in the provincial towns, *viz.*, Bristol, Birmingham, Sheffield and the London Association, and could form the basis of the National Association that is now so necessary.

In the writer's opinion, all help that can be obtained from employers' associations will be more than welcome, but it would be an error of the greatest magnitude for the L.M.B.A. to repeat their effort of 1921 and bring about the creation of a new national body with the peculiarly insular characteristics of the L.B.F.A., which, by its very constitution, appears to be unable to join the existing National Federation. It is to be explained that Foremen's Associations in London in past days have to a very large degree totally ignored their contemporaries, although many foremen are members of more than one association, but during the last two years some small progress in getting together has been made.

As salary earners in what can be described as difficult and arduous positions, foremen are limited in the amount of time and finance that can be contributed to co-operation in this matter, but it is fair to say to Mr. Hughes that the amount of spadework executed by them since the war proves that they are fully aware of the meaning of co-operation and are willing to do all within their power.

J. S. RIGDEN.
Secretary, L.A.B.F.C.W.
56, Priory-avenue, Cheam.

Cultural Relations with Russia.

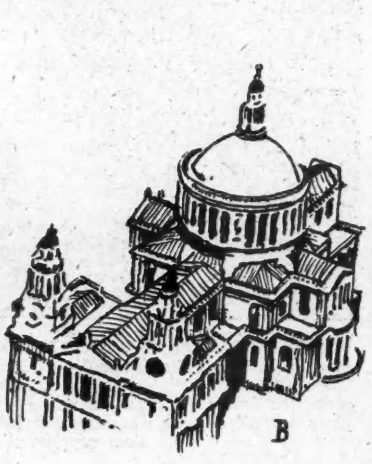
TO THE EDITOR OF *The Builder*.

SIR,—I have received an inquiry from the Secretary of the Architecture Section of VOKS (the Soviet Society for Cultural Relations with Foreign Countries) in the following terms:—

"We have had a request from some of our members for information on modern English architectural designs. They would like to have information on different types of up-to-date English residential (domestic) architecture. A brief description of the main tendencies in modern English architecture of this kind, and a set of photographs, illustrating modern architectural design and constructed buildings which have been approved by a wide English audience would be welcomed."

The S.C.R. Architecture and Planning Group wishes to collect a comprehensive selection of material so that Soviet architects can have the fullest information, and I should be glad to have the help of your readers in this, in the form of gifts of plans, photographs, descriptive material, or publications on post-war housing work.

ARTHUR LING,
Chairman, S.C.R. Architecture and Planning Group.
14, Kensington-square, W.8.



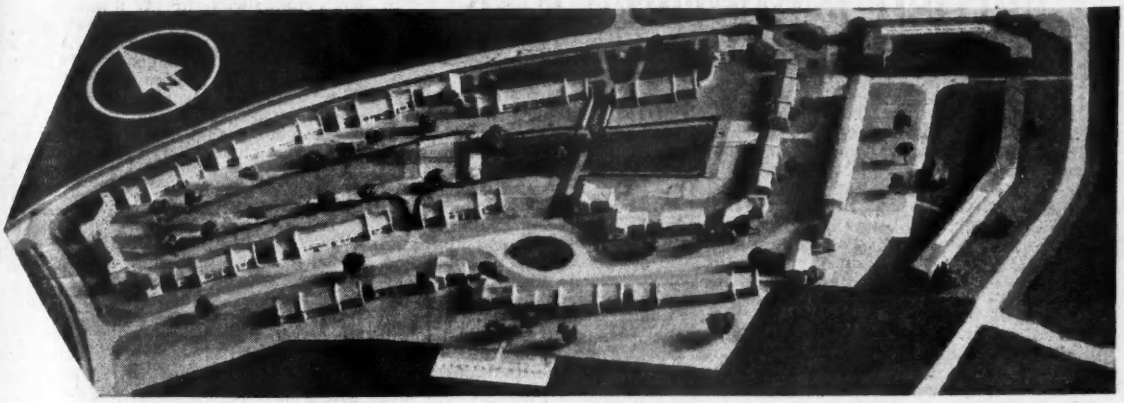
R.I.B.A.

R.I.B.A. Conference, Nottingham.

The British Architects' Conference will take place at Nottingham from June 29 to July 2 next. All members and students of the R.I.B.A., the A.A., the A.B.T. and allied societies are invited to attend. Details will be published in a forthcoming issue, but a leaflet giving particulars and entrance form is now obtainable from the R.I.B.A., 66, Portland-place, W.1.

Prizes and Studentships, 1949-1950.

The Royal Institute of British Architects has issued a pamphlet giving details and information on the prizes and studentships offered for 1949-50. Copies may be obtained from the R.I.B.A., 66, Portland-place, W.1, price 2s. each, exclusive of postage.



The layout of the first 100 houses to be built at Adeyfield. The road to the right is the St. Albans-road; that to the top is the new road already built by the Development Corporation. The three-storey terrace houses are seen to the right-hand side

HEMEL HEMPSTEAD NEW TOWN

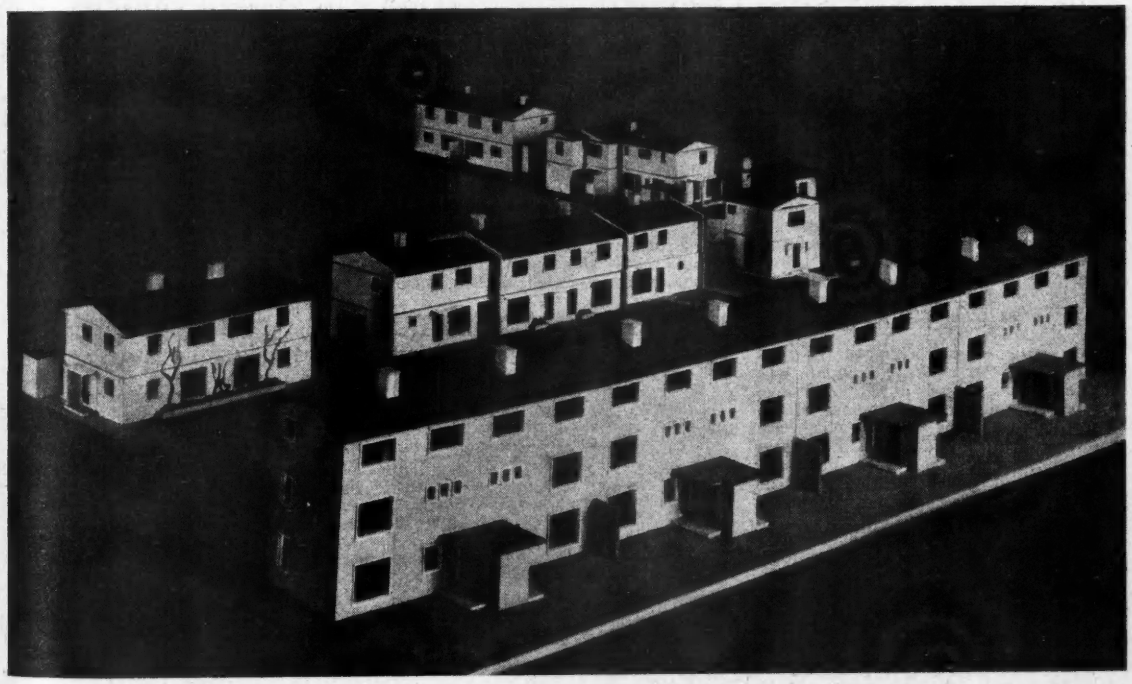
Commencement of Work of Building

STANDING on a canvas-protected improvised platform, Councillor A. L. Selden, J.P., Mayor and Bailiff of Hemel Hempstead, on Saturday, April 23, laid a stone to mark the start of work on the first house to be built by the Hemel Hempstead Development Corporation. The ceremony took place on the site of one of the 100 houses in the Adeyfield neighbourhood unit, the first section to be erected of the development scheme proposed for the Hemel Hempstead area. Among the principal guests were, the Rt. Hon. Lord Reith, Chairman of the Hemel Hempstead Development Corporation, Mr. R. H. Wilson, the Deputy Chairman, Mr. G. A. Jellicoe, F.R.I.B.A., P.I.L.A., architect of the original plan for the town, and officers of neighbouring local authorities.

Speaking for the Development Corporation, LORD REITH said, "Our desire is to live in harmony with the Borough Council, to work in co-operation with them, and to have terms of happy relationship with the old town generally." After carefully laying the stone in position, COUNCILLOR SELDEN referred to the ceremony as an historic occasion, for it represented the first fruits of the Development Corporation. It might seem that there had been a long budding period. In the beginning the proposed scheme was received with mixed feelings. That could be expected. Some of the statements made by opponents of the scheme were, he considered, not justified.

Assuring his hearers that what was planned to take place at Hemel Hempstead would not make it necessary for local residents to shoulder a heavy financial burden, MR. R. H. WILSON said that the scheme allowed for flexibility.

The ceremony over, guests examined plans of the scheme and models of the types of homes to be built. The first 100 houses at Adeyfield will be of seven different types, ranging from a group of 3-storey terrace houses of an experimental type to more traditional semi-detached 2-storey examples. The layout of the 100 houses includes a children's play-space, room for one garage to every two houses, easily accessible allotments and a pleasant green which preserves existing trees. Many of the houses will also include provision under the windows for flower boxes. There are an unusually large number of house-types in the first layout so that the Development Corporation can obtain experience in their construction and also benefit at an early date from what tenants have to say about their convenience and efficiency.



Some of the houses proposed (from a model).

BRITISH INDUSTRIES FAIR

A Review of Building Trade Exhibits

THE British Industries Fair, 1949, opens at Castle Bromwich, Birmingham, and Earls Court and Olympia, London, on Tuesday, May 2. It closes on Friday, May 13. The hardware, building and heating, electricity and engineering sections, comprising well over 1,100 exhibitors, are concentrated at Castle Bromwich.

At this time, when Great Britain depends for its very survival upon its ability to sell its products in overseas markets, the Fair is a highly important feature of the country's industrial year. The foreign buyers expected to visit this country in large numbers will want to see the latest advances in British scientific, engineering and industrial research and development. The wide range of materials, tools, heavy plant and equipment to be displayed in convenient compass at the London and Birmingham sections of the Fair will claim the closest attention of those whose quest is for goods of high quality at economic prices.

Following are details of some of the principal exhibits on the various stands:—

CASTLE BROMWICH

A.C.E. MACHINERY, LTD., Porden-road, Brixton, S.W.2, are showing a new 5-cwt. capacity lightweight winch. It is petrol-driven, easily portable, and can be employed for elevating building materials up to 10-cwt. capacity. Auxiliary equipment provides for hoisting 5 cwt. up to a height of 60 ft., or 10 cwt. loads on two-part rope up to about 40 ft. Another exhibit will be a special hoist for permanent installation in works, factories, etc., for handling bulk materials, cases, kegs, sacks, etc. These units are self-contained, push-button controlled and incorporate automatic limit trips with (if required) full circle swivelling. (Stand D, 235.)

AERASPRAY MANUFACTURING CO., LTD., 179-213, Thimble Mill-lane, Birmingham 7, will exhibit a full range of spray guns, air rectifiers, pressure feed paint containers, etc., also fixed and portable air compressors from ¼ h.p. to 10 h.p., with both electric motor and petrol engine drive, and a typical water wash spray booth installation. New equipment on show for the first time will include the G.88 automatic spray gun and the HL.3.A fluid pressure regulator, developed for use with the Ransburg electrostatic spray-painting process: also the "Vortex" heavy material pump for the application of sound deadeners, plastic paint, heavy bitumen compounds and similar materials. It is air-operated and has a maximum delivery pressure of 800 lb. per square inch. (Stand D, 734.)

AERONAUTICAL AND GENERAL INSTRUMENTS, LTD., Purley Way, Croydon, will offer a range of designs in lighting fittings for period and modern schemes of interior lighting. The fittings, which are hand wrought, are armour bright and stove lacquered. The firm makes a feature of the quantity production of fittings to architects' designs. (Stand B, 606).

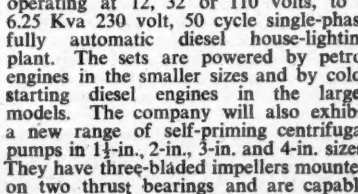
AIDAS ELECTRIC, LTD., Sadia Works, Rowdell-road, Northolt, Greenford, Middx, will present a selection of Sadia electric storage water heaters and Aidas immersion heaters. After the war Sadia added to the range of their storage heaters of 1½ to 60 gallons capacity, a dual purpose water heater, the U.D.B. At the exhibition will be seen large U.D.B. models of 35 and 40 gallons capacity for industrial purposes. Other models for supplying hot water to flat dwellings will also be on view. (Stand C, 103.)

ALMIN, LTD. (Associated Light Metal Industries), Farnham Royal, Bucks, and their associates, will feature a special five-minute film, showing the erection of an Alframe transportable storage building. The audience will be able to see a complete bay of this building erected by six men, without mechanical assistance, in less than 15 minutes. Another film will show the construction of factory-fabricated buildings at Brentford, which incorporate a combination of pre-stressed concrete columns, foam cement walls and aluminium alloy roofing. A photographic display will give details of Alframe roof construction. A special display will be made of Warco restaurant and canteen furniture. The table has an aluminium central pillar and frame which contains a reversible plastic table top. Chairs are of tubular construction. The table may be dismantled easily and will pack flat for export. (Stand B, 723.)

D. ANDERSON AND SON, LTD., Stretford, Manchester, will show a full range of "Red Hand" roofings, linings, insulating felts, dampcourses, and various flat roof systems. In addition this exhibit will include Siderosthen anti-corrosive paint, and Sideroleum wood preservative. (Stand B, 623.)

AUTO-DIESELS, LTD., of Uxbridge, will exhibit a range of portable and transportable electrical generating sets varying from a 500-watt battery charging set operating at 12, 32 or 110 volts, to a 6.25 Kva 230 volt, 50 cycle single-phase fully automatic diesel house-lighting plant. The sets are powered by petrol engines in the smaller sizes and by cold-starting diesel engines in the larger models. The company will also exhibit a new range of self-priming centrifugal pumps in 1¼-in., 2-in., 3-in. and 4-in. sizes. They have three-bladed impellers mounted on two thrust bearings and are capable of handling 25 per cent. solid matter. (Stand B, Outdoor.)

AVELING-BARFORD, LTD., Invicta Works, Grantham. This stand will feature road rollers (petrol and diesel), earth-moving equipment, including dumpers and a calfdozer, concrete road machinery and a trench-cutting machine. The largest roller, a diesel-driven machine, is fitted with a driver's cab and a two-tine hydraulic scarifier. In working order, without extras, it weighs 23,500 lb. and has a rolling width of 5 ft. 8 in. It has a pressure balancing device (patent) which enables equal pressure to be given on all three rolls or maximum pressure exerted on the rear rolls. Appearing for the first time will be a small pedestrian-controlled machine, named "Dumpling," designed for use on housing sites for the conveyance and dumping of building materials. It is of three-wheel design and has a capacity of half a cubic yard of earth, or seven cubic feet of wet concrete. It is powered by an air-cooled, four-stroke engine, developing 3.85 b.h.p. at a governed speed. Steering is by a large diameter handwheel mounted on a horizontal shaft. Control of the machine is by a single lever operating both the clutch and transmission brake and is so arranged that the brake is automatically released as the clutch is engaged for either direction of travel. (Stand D, Outdoor.)



The Aveling-Barford "Calfdozer," fitted with two-tine ripper.

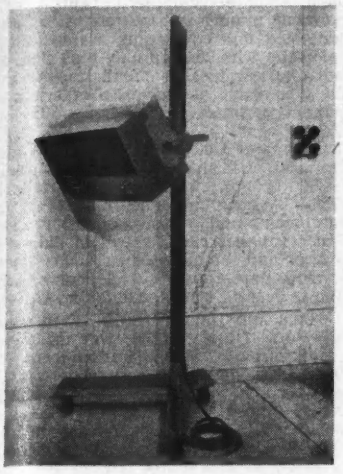
C. R. AVERILL, LTD., 22, Duchy-street, Stamford-street, S.E.1. Avarc graphite specialities and ranges of Avarc paints will be the main features of this display. Four ranges of paints will be shown covering Avarc silica-graphite paints, synthetic finishes, heat- and chemical-resisting paints. Typical industrial scenes will indicate the use of each of these finishes with harmonising colour schemes. The range of Avarc graphite specialities will vary from lubricating to jointing materials, including compounds and greases incorporating graphite, which have been designed for specific industrial requirements. (Stand C, 213.)

BAKELITE, LTD., 18, Grosvenor-gardens, S.W.1, will be showing "Bakelite," "Vybak" and "Warerite" plastics, synthetic resins, moulded materials, laminated sheet, adhesives, cements, lacquers, wall panels and veneers, vinyl compounds and articles made from these materials. Warerite, Ltd., an associated company, are exhibiting at Earls Court (Stand V, 71) two new materials, Warerite "Stroke 4," which is a surfacing material of exceptional hardness, and a new linen pattern material known as Warerite Weave. (Stand C, 404.)

THE BIRMINGHAM BATTERY AND METAL CO., LTD., Selly Oak, Birmingham 29, are showing how "the old order changeth" in connection with their display of copper underground water service tubes. One exhibit will be a large hollowed-out old tree-trunk unearthed near Regent's Park, London, where it was once in use for the supply of the capital's water. Alongside this, as a contrast, the firm will show their underground copper tubing in the form in which it is usually sold to-day; namely, in flexible coils up to 60 ft. in length. Copper housing tube for indoor use is also exhibited. (Stand D, 514.)

THOMAS BOLTON AND SONS, LTD., Widnes, Lancs., will show a full range of copper tubes. Of these products, the manufacturers state: "Light gauge copper tubes are easy to manipulate and can be bent cold on a simple bending machine without filling or annealing, and can be used with compression fittings or capillary fittings, or connections can be made by bronze or autogenous welding. The appearance of copper tubes is attractive and the ability of the metal to develop a protective skin on exposure to the atmosphere renders them safe from attack by the atmosphere or by water." (Stand D, 125.)

FREDK. BRABY AND CO., LTD., Fitzroy Works, 352-364, Euston-road, N.W.1. On this stand, which will have a steel framework and incorporate metal windows and partitions, doors and dovetail sheeting, will be products such as pressed steel stairs, door frames, tanks, cisterns and



The Bratt Colbran mobile gas infra-red drying unit.

cylinders, ventilators, gutters and pipes, barrows, rooflights and aluminium tiles. Other exhibits, typical examples of the metal products made for the chemical, oil, food, agricultural and other industries, will include steel drums, air receivers, ice moulds, bins, perforated metals, culverts, aluminium products, cattle troughs, barrows, wire machinery guards, etc. (Stand B, 609 and 508.)

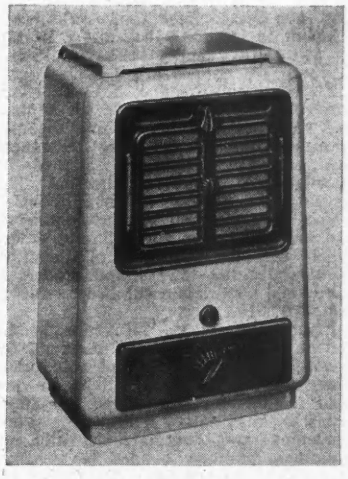
BRATT COLBRAN, LTD., Lancelot Works, Lancelot-road, Wembley, Middx. Chief exhibit here will be the Sunrise Fire, an imitation coal fire which radiates its heat from glowing imitation coals. Owing to the base being made from real firebrick, which forms the source of the heat projection, any matches or cigarette ends which may be inadvertently thrown on the fire will be consumed without affecting its function. The loading of the Sunrise is 2½ kw. Switching permits one-third, two-thirds, or full heat. If desired, the concealed lamp may be switched on alone, giving a cheerful appearance without heat. The three 833 watt plug-in elements are concealed inside the lumps of coal. The front frame and bars are finished in chromium plate, and the reflector has a hammered surface which is gold anodised. The back of the fire is finished in black ripple stove enamel. (Stand C, 504.)

THE BRITISH ALUMINIUM CO., LTD., Salisbury House, London Wall, E.C.2, will show new and improved forms of aluminium and its alloys which are being made available to industry. Six thousand different sizes and shapes of extruded section will be exemplified by a small pylon-type structure showing the lightness and strength which aluminium can offer for structural work, and by a balustrade incorporating a range of extruded shapes. (Stand D, 605.)

BRITISH CORK MILLS, LTD., 167, Victoria-street, S.W.1, will display corkboard for low-temperature insulation in land and ship's cold stores, refrigerators, etc. The corkboard is produced by the modern steam baking process which gives a slab with a high tensile strength and a low thermal conductivity. The company are also showing a range of granulated cork from 200 mesh up to 2 mesh. This material is used for low-temperature insulation, rubber-cork composition flooring, anti-condensation paints, etc. Other exhibits will include samples of cork sheets, cork flooring tiles, cork bungs and shives, cork floats and corkwood. (Stand B, 211.)

BRITISH ELECTRICAL DEVELOPMENT ASSOCIATION, 2, Savoy-hill, W.C.2, will present the case for fuller use of electricity in industry. Demonstrations will be given of a number of applications of electricity to industrial processes such as electronic motor control, a rotor tester, the B.B. crack detector, a microfilm reader and applications relative to radar and lighting. A large display panel will be devoted to precision casting and will show various stages of the process, as well as examples of its application to such things as die casting, tool making and parts of the modern jet turbine. (Stand C, 509 and 408.)

THE BRITISH GAS COUNCIL, Gas Industry House, 1, Grosvenor-place, S.W.1. This exhibit is designed to show the part played by the gas industry in speeding export production. Special prominence will be given to demonstrations and exhibits of some of the latest gas appliances and processes now available. Such processes as gas infra-red heating, which dries paint-finished articles in a few minutes as compared with previous times of several hours, enabling manufacturers to use conveyor-belt and other high-speed production systems, will be on view, and



The "Eagle" controlled combustion stove (free standing model). (See p. 534.)

a demonstration showing manipulative glass working under gas heat will also be given. The latter will be demonstrated by personnel of James A. Jobling, Ltd., of Sunderland. (Stand C, 619 and 518.)

THE BRITISH PLASTER BOARD, LTD., 192, Birkenhead-road, Wallasey, Cheshire, will present a display showing the development of plaster work from the earliest times to the present day, starting with the mud hut of the prehistoric period and showing the decline in the quality of plaster work in the Dark Ages and its gradual revival in Tudor times. The modern use of Gypsum plasters will be emphasised. (Stand B, 511 and 410.)

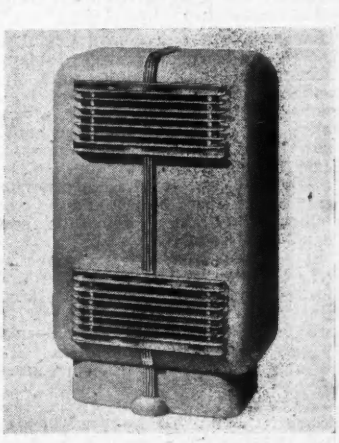
CELLON, LTD., Kingston-on-Thames. The general layout of this stand will emphasise the wide range of finishes offered by this firm for all purposes. Of particular interest to the decorating trade will be a selection of panels coated with "Cerrux" decorative finishes, and "Cerrusco" texture paint, etc. "Cellon" pre-treatment primer will be shown for the first time; as the name implies, this primer is intended to combine chemical pre-treatment of metallic surfaces with the application of a corrosion inhibiting film. It can be applied to aluminium and its alloys and also ferrous zinc, cadmium and tinned plate surfaces. (Stand B, 527.)

CHATWINS, LTD., Market Foundry, Tipton, Staffs, will show a working model of the "Sunbeam" FS cooker designed to burn all types of solid fuel including coke, anthracite, coal and manufactured fuels, at the rate of one to 1½ cwt. weekly. It is claimed that the cooker will idle for 10 hours, consuming fuel at the rate of only half a pound an hour, so that it can be left burning all night to provide hot water in the morning. (Stand B, 700.)

CLARKE ELLARD ENGINEERING CO., LTD., Works-road, Letchworth, Herts, are exhibiting "Estate" sliding door gear, also "Cabinet" tracks and sliders. "Estate" gear is intended primarily for internal domestic doors such as those in kitchenettes, bathrooms, larders and small rooms where floor space must be saved. It can also be used to divide the dining and drawing rooms, enabling these to be opened into one large room. The gear is rust-proofed throughout with cadmium plating to withstand steamy kitchen and bathroom conditions, and the bearing design obviates lubrication and maintenance. The fittings are concealed by a "snap-on" pelmet. (Stand B, 610.)

GEORGE COHEN SONS AND CO., LTD., Wood-lane, W.12, include in their "600" group of companies' exhibit, power presses, sheet metal and plate working machinery, diesel-driven mobile cranes, electric hoists, electrolytic iron powder and cast iron powder, woodworking machinery, as well as ferrous and non-ferrous scrap. The Jones KL44 lorry-mounted crane is to be exhibited for the first time this year. The chassis is a six-wheeled Leyland "Hippo" powered by a six-cylinder Leyland diesel engine developing 120 brake horsepower; the gearbox has five forward speeds and a reverse. The full maximum load of four tons can be lifted either over the sides or over the rear end of the chassis, and the crane can travel, at low speed, with full working loads. (Stand D, 604 and D, Outdoor.)

W. H. COLT (LONDON), LTD., Surbiton, Surrey, will be displaying Colt industrial and domestic ventilators. The Colt "constant flow" ventilator comprises a mild steel casing, housing self-adjusting vanes carried in silent plastic sleeves. Ordinarily these vanes permit the uninterrupted flow of air, but when, as in high winds, the rate of the incoming air exerts a pressure sufficient to cause a



The Harper No. 4008 portable convector gas radiator. (See p. 534.)

draught, the vanes partly close restricting the aperture and automatically reducing the rate of air-flow. (Stand B, 725.)

CONSTRUCTORS, LTD., Nickel Works, Tyburn-road, Erdington, Birmingham 24, will display steel works and office equipment, racks, bins, shelving, adaptable partitioning, etc. Visitors may also see typical cycle racks, benches, tool stands, miners' lockers and strongroom doors, etc., made by the same company. (Stand D, 401 and 300.)

COPPER DEVELOPMENT ASSOCIATION, Grand Buildings, Trafalgar-square, W.C.2, will display the uses of copper and copper-bearing materials in such recognised fields as electrical and mechanical engineering, chemical engineering and building technique. A model house in Perspex will show the use of copper tubes and fittings for gas and water services, and the disposal of soil and waste effluents. A mechanical engineering panel will demonstrate the suitability of copper, brass and bronze for burners and nozzles. (Stand D, 230.)

CRANE, LTD., 45, Leman-street, E.1, will have a comprehensive display of valves, fittings and heating equipment, manufactured at their Ipswich works. A large portion of this stand will carry cast iron and gunmetal valves suitable for various working pressures and temperatures and made with either screwed or flanged connections, including examples of gunmetal globe valves for steam working pressures up to 250 lb. per square inch and a total temperature of 500 deg. F. They are fitted with renewable nickel alloy swivel discs and renewable stainless steel seat rings designed on the conical plug principle. Another valve to be seen is the D.7 Gunmetal Globe Valve, fitted with a renewable disc that can be changed quickly. It is rated for steam at 200 lb. pressure per square inch. A number of Crane inverted open float steam traps will also be exhibited. (Stand B, 516.)

DUNLOP RUBBER CO., LTD., Cambridge-street, Manchester, 1, will feature a range of goods manufactured from Silicone rubber for which are claimed heat-resisting and electrical insulating properties. A section of the largest armoured hose ever made by the company will also be exhibited. This has a bore of 23½ inches and is heavily reinforced to withstand arduous dredging conditions. Other items will include samples of conveyor and transmission belting, hose and flexible hose assemblies, commercial rubber goods, tubing, rubber covered rollers, ebonite, anti-corrosion rubber, rubber flooring and mats, and other rubber goods for industry. (Stand D, 519.)

EAGLE RANGE AND GRATE CO., LTD., 7, Stratford-place, W.1, will display a selection of their latest solid fuel appliances, some of which will be in operation. Visitors will see the Advance Range No. 1, designed for large houses, small hotels and boarding houses, the Eagle free-standing slow combustion stove with several new features incorporated, the Advance Range No. 31 and the Eagle Fulham and Sutton convector grate. (Stand B, 501 and 400.)

ELECTROLUX, LTD., 153-5, Regent-street, W.1, will show the largest addition to the Electrolux range of refrigerators, Model L.K.450, a family size cabinet of 4.6 cubic feet capacity, which can be operated by either electricity or kerosene. This feature should make it particularly acceptable in undeveloped territories where refrigeration is a necessity yet where electricity is not always available. Of steel construction, the cabinet has a lacquer external finish and a porcelain enamelled food storage compartment.

"Adastra" galvanised sectional steel telegraph pole. (Poles, Ltd.)

The four electroplated shelves allow adjustment to facilitate the storage of tall or awkwardly shaped objects. (Stand C, 736.)

ELSAN MANUFACTURING CO., 51, Clapham-road, S.W.9, will have on view a full range of portable closets, together with self-drainage units for permanent sites, and a special closet designed for installation in yachts and caravans. The O.G. and U.G. Self-Drainage Units—which have separate sewage containers, and are fitted with an agitating device which, with the aid of Elkol Chemical, disintegrates the sewage and renders it sterile and odourless—will also be shown. (Stand B, 616.)

FIBREGLASS, LTD., Ravenhead, St. Helens, Lancs, will show materials for insulation against heat and cold, electricity and sound. There will be on view rigid sections for steam pipe insulation, acoustic materials, quilt for sound deadening and thermal insulation in buildings, bitumen bonded for thermal insulation, and woven glass tape for electrical insulation. An acoustic chamber will demonstrate the sound-proofing quality of Fibreglass. Further, there will be a bank of five looms in full operation producing Fibreglass tape, and a wide range of Fibreglass textile materials. (Stand B. 200.)

GALVO (WIRE NETTING), LTD., Coneygre-road, Tipton, Staffs, will show "Bondenn" brickwork reinforcement. It is made of galvanised wire of high tensile strength and its main uses are to reinforce brickwork where subsidence and vibratory stresses are likely to occur. Its inclusion in brickwork considerably reduces the thickness of the structure thereby saving space and material. It is made in various widths. (Stand A, 228.)

GENERAL ELECTRIC COMPANY, LTD., Magnet House, Kingsway, W.C.2, will feature a selection of heavy-duty flameproof machinery suitable for oilfields, refineries, tankers, chemical plants, collieries and similar locations. These exhibits will include flameproof oil-immersed switchgear, automatic flameproof gate-end switchgear, flameproof oil-immersed reversing contactors and a portable mining sub-station. A large coloured mural will depict some of the more suitable situations in which this equipment may be employed. The G.E.C. portable mining sub-station is a self-contained unit comprising a transformer complete with flameproof high tension isolator, low tension circuit breaker and flit type cable boxes, each of which is Buxton certified. (Stand C, 503 and 402.)

GENT AND CO., LTD., Faraday Works, Leicester, will have on view a marine clock system, a watchman's tell-tale clock system, fire and burglar alarm equipment, and various mine signalling systems. Other exhibits will include staff locator and luminous call systems, liquid level control apparatus, telephones, bells and indicators, syrens, etc. (Stand C, 407.)

HALE AND HALE (TIPTON), LTD., Dudley Port, Tipton, Staffs, will include in their display manhole step-irons of Blackheart malleable cast iron. Visitors will also be introduced to the Hewitt wedge release, designed for use as a cutter sprag or chock release in collieries, but which, the company believe, is easily adaptable for use in the erection of temporary structures in reinforced concrete. (Stand D, 609 and 508.)

JOHN HARPER AND CO., LTD., Albion Works, Willenhall, Staffs, will show a comprehensive range of gas grilles and radiators, portable gas fires, oil stoves and heaters, in addition to examples of their machined castings, steel pressings, vitreous enamelling, etc. (Stand A, 334.)

G. A. HARVEY AND CO. (LONDON), LTD. See "Earls Court" section for details. (Stand B, 329.)

H.E.C. COMPRESSORS AND ENGINES, LTD., Levis Works, Stechford, Birmingham, 9, will exhibit a standard range of air compressors and complete compressor units. The range covers single-stage air-cooled compressors with displacements from 1.6 cu. ft. per min. to 16.7 cu. ft. per min. for pressures up to 150 lb. per square inch. The stationary compressor units being exhibited are automatic, the motor stopping when the higher pre-set pressure is reached, and restarting when the stored pressure falls below the lower setting. A new model (P.G.R.), of special interest where electric supply is not always available, is a heavy duty 5 cu. ft. unit mounted on a chassis with pneumatic-tyred wheels. (Stand D, 739 and 638.)

HIGH DUTY ALLOYS, LTD., Slough, Bucks, will display aluminium and magnesium alloys, castings, forgings and stampings; also exhibited will be pressings, ingots, textile bobbins and accessories and components for the textile industry, etc. (Stand D, 232.)

HENRY HOPE AND SONS, LTD., Smethwick, Birmingham 40, will be showing hot-dip galvanised windows and doors, pressed steel door frames, mullions, window surrounds and lavatory cubicles, etc. Also exhibited will be Eseglaze steel bead, designed for windows and doors to be glazed from inside and particularly for those with large panes. (Stand B, 415 and 316.)

HOTPOINT ELECTRIC APPLIANCE CO., LTD., Crown House, Aldwych, W.C.2. This stand will have a centre display of Hotpoint junior electric cleaners, while another section will comprise a home laundry unit featuring the Hotpoint washing machine with electrically driven wringer and bowl-emptying pump; also flat-plate and rotary ironers, and clothes drier. A "Coldrator C.D.3" refrigerator of 3 cu. ft. capacity will be shown in the Hotpoint kitchen. A general appliance section will include electric fires, a plus-five iron, a glass-sided "turn-over" toaster, and a "Clampon" type kettle. (Stand C, 513.)

THE HYMATIC ENGINEERING CO., LTD., Redditch, Worcs, show examples of light-

weight static, mobile and portable precision-made air compressor sets, together with accessory equipment and tools. In the centre of the stand will be the mobile air compressor set HMS25, a compact and easily transportable power unit. This set, with a petrol engine, has a working pressure of 150 p.s.i., and is powerful enough to operate medium size pneumatic tools or a battery of spray guns. A new mobile compressor set HPS2/T, with petrol engine, and selling at under £70, will also be featured. This set is suitable for many operations, such as crop spraying, disinfestation, powder dusting, tyre inflation and other purposes where small, easily mobile units are required. (Stand D, 105.)

IMPERIAL CHEMICAL INDUSTRIES, LTD., Metals Division, Kynoch Works, Witton, Birmingham 6, will have three main exhibits dealing with condenser tubes, aluminium alloys and roofing panels. A model representing the inlet end of a condenser will be used to demonstrate some operating conditions which tend to produce failure of condenser tubes through erosion, corrosion or impingement attack. A second exhibit will show how aluminium alloys can be used in coachbuilding to produce vehicles which are strong, light, durable and an economic proposition. Also featured will be an exhibit illustrating the extensive investigation work associated with copper or aluminium alloy faced roofing panels, and with the adhesives for bonding the layers which make up these units. (Stand D, 409 and 308.)

GEO. W. KING, LTD., Hartford Works, Hitchin, Herts, will show on this stand mechanical handling equipment, including electric chain pulley blocks, overhead runways and "Safelec" busbar system for track electrification, hand pulley blocks featuring "Ropelock" hoists, overhead crane and conveyor components, "Electricar" electric industrial trucks; also sliding door gear and the new "Marvex" electric chain pulley block. (Stand D, 404.)

THE LONDON AND MIDLAND STEEL SCAFFOLDING CO., LTD., St. Luke's Works, Old Hill, Staffs, will show Burton's patent double grip tubular steel fittings, splitheads or trestles for plasterers and decorators. This firm will also be exhibiting Burton's heavy duty aluminium alloy scaffolding tube, steel props and trench struts. (Stand B, 411.)

MILLS SCAFFOLD CO., LTD., Trussley Works, Hammersmith-grove, W.6, will display a scale model of a temporary building constructed at Bridgend, Glamorgan, last summer, to house the National Welsh Eisteddfod. It shows a complete auditorium (to seat approximately 10,000 people) with raised platforms. Trusses spanning 45 ft. formed part of the original building's structure. Further examples of structural work carried out by this firm will be seen among a large number of photographs on view. (Stand B, Outdoor, and Stand B. 303 and 202.)

MUREX WELDING PROCESSES, LTD., Waltham Cross, Herts. Here visitors will be able to watch practical demonstrations of electric arc welding on the stand. The new Murex safety device will also be on show. This is a small unit for A.C. welding equipment and is designed to reduce automatically the voltage at the electrode holder from the normal 80 or 100 volts to a safe 30 volts within a fraction of a second of breaking the arc. The new Murex 175 amp. transformer equipment is to be included. This set meets the demand for low-input arc welding equipment for use in small engineering works, garages, and on farms. A full range of welding accessories will be on view, including the new Murex plastic covers for use with helmets and handshields. They are designed to fit in front of the coloured filter glass, which they protect from spatter. (Stand D, 709.)

NORTHERN ALUMINIUM CO., LTD., Wellington House, Lancaster-place, W.C.2. The theme of the display here is the company's direct products and manufacturing resources. An overhead view of a 3,000-ton extrusion press will occupy one panel in front of which may be seen five of the largest extruded sections ever produced in this country. Scale models of the firm's works at Banbury, Rogerstone and Birmingham will be shown, where semi-fabricated aluminium and aluminium alloy goods, comprising sheet, plate, extrusions, tubing, wire, forgings, castings and paste for paint are produced. Main products are sheet and extrusions. The former is represented by a 1,500-lb. coil, used decoratively and in stand-fitting. A wide range of extrusions comprising several hundred sections will be displayed on a moving belt contained in a cabinet built up from tubes. It is hoped, also, to show 10-in. diameter tubes. (Stand D, 629.)

OZALID COMPANY, LTD., 62, London Wall, E.C.2, will exhibit four new Ozalid plan copying machines, each of which incorporates improvements on those in use to-day. The largest machine will give synchronised exposure, development, stacking of finished prints and originals in one continuous operation, at a speed range from zero to 30 ft. a minute; the variable drive will be controlled by a Thymotrol electronic device. Another machine is intended for the small to medium class user and the separation of originals and sensitised material is done by hand. The third machine, a continuous table-type copying machine, is also designed specifically for the small user, and a new developing machine of streamlined design incorporates the latest ideas in ammonia development. (Stand D, 707 and 606.)

POLES, LTD., Nickel Works, Tyburn-road, Erdington, Birmingham, 24, will display "Adastra" poles made from steel and hot spelter galvanised after manufacture. The poles are of the sectional type and a number of standard tapering tubular sections may be assembled in a variety of combinations to provide a range of poles up to 15 metres in height. The tapering design and grading in thickness of sections produces a pole with an exceptionally high strength to weight ratio. The poles can be used as supports for overhead electric power lines, telephone and telegraph lines, street lighting standards, radio masts, flagstaffs, etc. The sections can be quickly and easily fitted together on site, the tapering joints providing strong rigid connections. (Stand C, 323.)

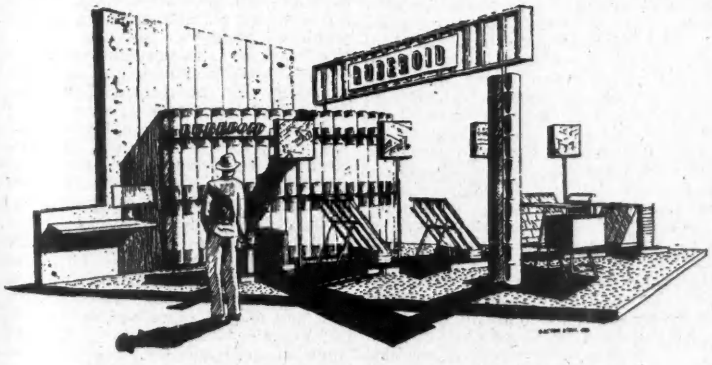
THE RAWLPLUG CO., LTD., Rawlplug House, Cromwell-road, S.W.7, will present fixing devices and tools, and there will be an extensive display of Rawlplugs and Rawlbolts with many examples of actual fixing jobs. Among the fixing devices will be shown the Rawlplug Girder Clip, a device which clips to girders and will take brackets at any angle for the carrying of pipes, cables, conduits, etc. There are two types, one for "H" girders and the other for angle girders. Rawltools for hole boring will also be on show. The range consists of Rawldrills for use with Rawlplugs, stardrills for use with Rawlplugs, wall boring tools for penetrating right through walls, tubular boring tools, which collect debris whilst boring, four-point drills for electric hammers, studless bits for pneumatic hammers and eight sizes of durium tipped drills. Durium drills are essentially masonry drills; they will cut holes in brick, tile, marble, terracotta, cement, cellular light-weight concrete, hollow clay blocks, etc. (Stand C, 707.)

ROZALEX, LTD., 10, Norfolk-street, Manchester, 2, will display a range of preparations for dealing with most of the known industrial skin irritants. On the stand, too, will be a Rex Dispenser, a machine which enables workpeople to obtain an economic quantity of Rozalex quickly. (Stand D, 706.)

THE RUBEROID CO., LTD., Commonwealth House, 1-19, New Oxford-street, W.C.1. Models will be exhibited of Ruberoid single-layer roofings, flashings and built-up specifications suitable for every type of roof. Also to be shown are Ruberoid strip slates (octagonal and square butt surfaced with naturally coloured mineral granules in blue, grey or green); reinforced Zylex Slater's felt (a tough hessian-based sarking felt); and No. 1 Pluvex 7-lb. hessian-based dampcourse and Astos. Visitors will be able to examine models of the Ruberoid insulated steel roof. (Stand B, 423.)

RYLANDS BROS., LTD., Warrington, will display the following products: bright wire, annealed wire, "Brylanised" cable wire, coppered mild steel wire, tinned wire, flat wire, shaped wire, etc. Also on view will be "Brylanised" netting, wire netting, wire nails, staples, wall tiles, etc. (Stand A, 528.)

SADCOLOK, LTD., Delta House, 222, Balham High-road, S.W.12, will present Sadcolok kitchen cabinets, dressers, sink units, all based on the Cookson patent lock joint, and Hermitage non-corrosive aluminium rainwater goods of finest quality sheet aluminium made from spe-



The Ruberoid stand (B, 423, Avenue 400). Designed by Eric Brown, L.R.I.B.A., M.S.I.A.

cification AWC 4 (Hiduminium). Visitors will also be able to see Sadcolok refrigerator cabinets, including the 4 cu. ft. cabinet, made either as an upright model, work-table model or a combined sink refrigerator model. Also there will be the new metal clap boarding (weather boarding) and roofing, all based on the Cookson patent lock joint. (Stand B, 608.)

SCAFFOLDING (GREAT BRITAIN), LTD., 53, Plough-lane, S.W.17, will exhibit their chief products, such as steel scaffolding, aluminium alloy scaffolding, prefabricated frame scaffolds, etc., in the form of models. Experts will be present to give information in respect of depots overseas, and of the sales and services organisation. They will also give particulars of actual joinery and builders' plant, of which it will not be possible to exhibit full-size samples. (Stand B, 311.)

SEALOCRETE PRODUCTS, LTD., Atlantic Works, Macbeth-street, W.6, demonstrate the waterproofing, hardening, dustproofing and colouring of cement and concrete. The range of coloured sands and other aggregates to be shown are produced by treating sand and aggregates with a permanent colour which, it is stated, will not wash off on exposure or when subjected to heavy rain. A method of catering for the physical movement of concrete at construction joints and the waterproofing of concrete for foundations below ground (basements, etc.), will also be on view. (Stand B, 614.)

SHIRES AND CO. (LONDON), LTD., Normans Buildings, Central-street, E.C.1. This exhibit will include a new sanitary flushing cistern with silent-action O.C. pattern fittings, especially designed to compete in overseas markets. This cistern is of superior quality to those generally being used on the Continent, and the duranite shell is claimed not to be affected by water. It does not require painting. The high-level cistern has an all-brass valve outlet. The company's B.S.S. pattern cistern, with duranite shell, will also be shown under water, enabling visitors to test its action. (Stand B, 708.)

K. J. AND A. SOMMERFELD, LTD., Trench Works, Wellington, Shropshire, will exhibit scale models of products such as roof trusses, roof units, floor joists, soil pipes, pressed and cold rolled sections, fences, concrete reinforcements, flexboards, etc. Visitors will also see here the "Ayland" steel staircase, a section of which is being exhibited for the first time. It consists of a series of "L" shaped elements which provide the tread of one step and the rise of the next. The nosing of each tread is formed into a scroll which slides endwise over the inverted scroll of the next step. A strong laminated section is thereby formed at the point of greatest wear and weight. Comparatively thin metal can be used and each step is supported to the stringers by a rod inserted through the scroll and screwed at either end. The principle may be applied in certain instances to spiral and curved shapes as well as straight. (Stands B, 602 and B, Outdoor.)

STEEL SCAFFOLDING CO., LTD., 82, Victoria-street, S.W.1, will be exhibiting the "Big Ben" scaffolding fittings, together with "Big Ben" adjustable steel stands and "Big Ben" tubular steel trestles. The fittings are British drop forged and are all in one piece with no loose bolts or nuts. The adjustable steel stands are telescopic with coarse and fine adjustments for extending to various platform heights and are in three sizes. The tubular steel painter's trestles are self-locking when placed in position and cannot close accidentally. (Stand B, 605.)

The Wolf ½-in. heavy-duty drill.

STELCON (INDUSTRIAL FLOORS) LTD., Cliffords Inn, E.C.4. The floor of this stand will be made of "Stelcon" anchor steel plates, "Stelcon" bicycle parking blocks may be seen, while a new exhibit will be the "Stelcon" storage wall, designed for storing bulk materials in the smallest possible area. A full-size section will be on show, together with models showing the formation of these walls. (Stand D, 215.)

STEWARTS AND LLOYDS, LTD., Broadstreet Chambers, Birmingham, 1, and subsidiary and associated companies will exhibit a wide range of products, including miscellaneous tubular steel fabricated articles, including clothes poles, wringer stands, screw pickets, cattle pen, horse shafts, barrow frames, road trestles, implement handles, etc. A cinema of tubular steel construction, with seating capacity for 120 people, is to be set up in which the S. and L. films, "Job 99—Pluto," "Thro' the Mill," and "The Tube Age" will be shown thrice daily. A variety of types of tubular steel lighting columns for gas and electricity will also be displayed. (Stands D, Outdoor, D, 511 and 408.)

JOHN THOMPSON, LTD., of Wolverhampton, are showing several scale models of power station plant, etc., as well as exhibits from their current production programme. The major exhibit will be a fusion welded boiler drum 3 ft. 9 in. diameter, 23 ft. 9 in. long, weighing 11¼ tons, and having an operating pressure of 450 lb. per square inch. They will also show a pressed end in "Everdur," 4 ft. diameter and ½ in. thick. These are fabricated for an associated company, JOHN THOMPSON (WATER TUBE BOILERS), LTD., who will also be represented by a model showing two of eight boilers at present being installed at West Ham Power Station. Another model illustrates an installation of a La Mont forced control circulation boiler adapted for marine purposes, giving maximum duty from minimum space and showing economy in hold capacity. (Stand D, 521 and 418.)

THE THWAITES AGRICULTURAL ENGINEERING CO., LTD., Central Chambers, Leamington Spa, are showing the new 1949 Thwaites Hoist used for building construction of all types, and particularly for the traditional house. It may be used to lift bricks, tiles, blocks, small lintols, bales, sacks, boxes, etc., or concrete carried in a special tipping skip. The general appearance and function are almost identical to the old type Thwaites Hoist, but the h.p. of the new model is doubled with a 2/2½ h.p. 4-stroke Villiers petrol engine. It is claimed that its two operators, working independently and with the least possible fatigue, will easily maintain full support to 8 to 12 bricklayers on several pairs of houses. (Stand D, Outdoor.)

THE TUDOR ACCUMULATOR CO., LTD., 50, Grosvenor-gardens, S.W.1, will show examples of the different types of batteries they manufacture. Both open and sealed types of stationary cells will be on view and a Tudor "Safetylyte" emergency lighting equipment as supplied to hospitals, cinemas, etc., will be shown operating with a 100-volt battery. Traction batteries of varying capacity for the propulsion of electric vehicles and trucks will be featured and cut-away sections will illustrate the triple separation of the plates by specially treated wood separators, perforated ebonite and glass wool. There will also be shown marine cells as used for radio-telephony, emergency lighting and other purposes on Trinity House lighthouses and lightships. (Stand C, 109.)

THOS. W. WARD, LTD., Albion Works, Sheffield, and subsidiary companies, will have two stands. An indoor stand will display photographs of those aspects of the group's operations which cannot be exemplified by actual products or equipment—factory planning, industrial dismantling, shipbreaking, railway constructional work, scrap handling and the like. An outdoor stand will show examples of the companies' range of machinery and industrial plant. An 8,000-gall. tank of the pressed-steel sectional type will be on show as well as a full-size rail turnout by Darlington Railway Plant Co. The "Swift" range of food-preparing machinery includes mincers, bowl cutters, sausage fillers, presses and similar butchers' equipment. The combined stands aim to cover a wide field, including new and reconditioned machinery, general contractors' plant; power plant and industrial equipment, locomotives, excavators and cranes; structural steelwork, iron, steel and non-ferrous metals, engineers' small tools and electrical equipment, etc. (Stands D, 745 and D, Outdoor.)

WARSOP POWER TOOLS, LTD., 27, Regent-street, W.1, will be showing the portable and self-contained Warsop S.6 breaker which incorporates built-in power and dispenses with the compressor, air hose, batteries, cables and springs. The power unit consists of a 249 c.c. petrol engine mounted in the head of the machine—controlled by twist-grip throttle control in the handlebars. Ignition is obtained by a simple flywheel magneto. (Stand B, Outdoor.)

S. WOLF AND CO., LTD., Pioneer Works, Hanger-lane, W.5, will enable visitors to see on this stand the complete range of Wolf portable electric tools. It comprises electric portable drills, screwdrivers, grinders, polishers, sanders, blowers, chisel mortisers, hammer kits and a quantity of engine reconditioning equipment, including valve seat grinders and valve and engine servicing kits, valve refacers and the "Mobilectric" engine workshop. Also on show will be the G.L.3 portable electric lathe grinder for external and internal grinding, and two new valve seat grinding kits. (Stand C, 603.)

YORKSHIRE COPPER WORKS, LTD., Leeds, will display "Yorkshire" copper housing tubes, "Yorcalbro" (aluminium brass) and cupro-nickel marine and power station condenser tubes. Two 6-in. bore bent and flanged pipes will be seen; one in "Yorcalbro" and one in "Yorkshire" copper-nickel iron alloy. These pipes are superseding heavier-gauge copper pipes for sea-water pipelines owing to their resistance to corrosion. "Yorkshire"

fittings will have a prominent place and apart from the many examples of standard sizes, the range of fittings in 3 in. and 4 in. sizes will be exhibited with tools for assembling them on site. There also will be a waste and anti-syphon system layout and a dual plumbing and calorifier heating system made from "Yorkshire" copper tubes and "Yorkshire" fittings. (Stand B, 727 and 634.)

ZINC ALLOY RUST-PROOFING CO., LTD., Shakespeare-street, Wolverhampton. This stand shows specimens of architectural, engineering, electrical, building and domestic ironwork rust-proofed by the sherardising process. It forms a technical information bureau where visitors will be able to obtain full particulars of the process, its cost, and details of the uses to which it can be put in the various trades mentioned. This company does not manufacture the ironwork, but specialises in carrying out the sherardising for the actual makers of such items as steel casements, metal trim, electrical conduit, iron door furniture, screws, nails, gate fittings, etc. (Stand B, 720.)

EARLS COURT

DE LA RUE INSULATION, LTD., 84, Regent-street, W.1. This stand will comprise a new plastic floor covering, produced by an associated company, and the display of a large interlaminate printed mural in non-scratch, non-stain Formica. Photographs will show the application of Formica and other De La Rue products, and further exhibits will include furniture, panelling in "realwood" Formica, and a display of industrial material and extruded products. (Stand X, 2.)

HOLOPLAST, LTD., New Hythe, near Maidstone, Kent, will be showing at the Earls Court Section of the Fair examples of typical constructions embodying "Holoplast" structural laminated plastic panel. A new demountable partitioning system, embodying various methods of jointing technique, including the flush type, will be featured. Also "Holoplast" acoustic and heating panels will form part of the stand construction. There will also be shown for the first time many new developments, including some attractive surface finishes. (Stand X, 23.)

OLYMPIA

G. A. HARVEY AND CO. (LONDON), LTD., Greenwich Metal Works, S.E.7, will be showing "Harco" steel equipment, covering modern methods of filing and storekeeping, including "Harco" double pedestal and single pedestal steel desks and steel tables, steel plan cabinets, filing and card index cabinets, cupboards, lockers in steel and aluminium, etc. Also prominent on this stand will be "Harco" glazed type office partitioning in aluminium. (Stand E, 15.)

At Birmingham (stand B, 329) Harvey's will be showing, in addition to steel equipment, heavier products, including heavy constructional work, perforated metals, woven wire, wire work, sheet metal work and steel plate work.

SCIENTIFIC EXPORTS (GREAT BRITAIN), LTD., Buckingham House, Buckingham-street, Adelphi, W.C.2, and associated firms, will be showing a new type of metal unit laboratory furniture, also the Mullard-BTL Potentiometric apparatus for Karl Fischer titrations (used in connection with moisture testing). Among a wide range of instruments on view will be quartz spectrographs (for revealing the secrets of the atom). (Stands C, 3, 4, 10 and 17.)

SHELL CHEMICALS, LTD., 112, Strand, W.C.2. Visitors to the Shell stand will see large-scale models of the three sections, Earls Court, Castle Bromwich and Olympia itself, with every stand represented and every special feature in its place. The firm are making the Fair itself the main feature of their stand in order to illustrate the use of their chemicals in industry to-day. Intermittent lighting of specific sections of each model will be synchronised with illuminated wall panels showing the chemicals used by the industry represented in that section. (Stand B, 13.)

SMITHS ENGLISH CLOCKS, LTD., Sectric House, Waterloo-road, Cricklewood, N.W.2, who produce, with their associated companies, all forms of timekeeping equipment from the popular grade pocket watch to the strike and chime mechanism of a tower clock, will show a comprehensive range of "Sectric" wall and mantel clocks and many new models. Another section will show desk thermometers, wall fixing thermometers, desk and wall fixing hylotherms (maximum and minimum thermometers), barotherms and pendant barometers in beautifully finished wooden cases. (Stands H, 501 and 551.)

HOUSING PROGRESS IN CANADA

Official Statistics

THE Dominion Bureau of Statistics at Ottawa produces a Housing Bulletin which records housing progress in Canada under a variety of headings. The particulars given are the results of a nation-wide survey carried out each month by the Bureau with the co-operation of the Central Mortgage and Housing Corporation. All metropolitan areas and urban centres with a population of 5,000 or more are enumerated completely, while approximately 400 sample areas lying outside these municipalities are also chosen for complete enumeration.

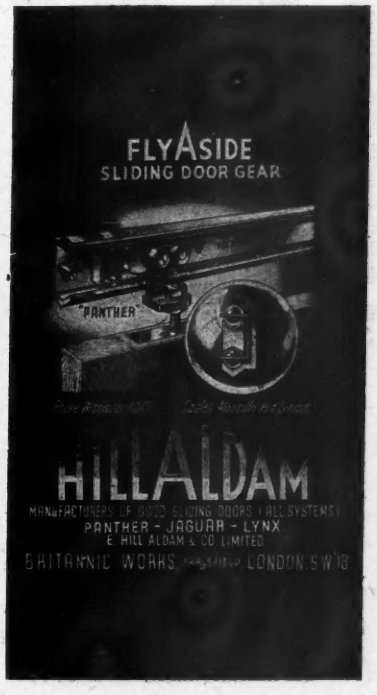
Housing Bulletin No. 12, dated February, 1949 (price $1.00 per annum), deals with the construction of dwelling units from January 1 to December 31, 1948, and shows that during this period the estimated number of units completed, including 5,146 conversions, was 81,243, compared with 79,359 in 1947. This brings the total number of dwelling units completed in the past four years to 276,516. It is stated that there was considerably more activity in the residential construction field in 1948 than in 1947. Although completions were only 1,884 units more, the number of units under construction increased from 42,215 at December 31, 1947, to 56,456 at December 31, 1948. Contractors are said to have taken advantage of the good building weather in the late fall to concentrate on getting construction started rather than completing the dwellings which had reached the "closed-in" stage. The high "carryover" indicated that the usual seasonal decline in the number of completions will be less pronounced in the winter months to come.

The average length of time taken to build the dwelling units completed in Canada last year was 6.5 months. The Quebec average of 5.5 months is said to reflect the higher proportion of multiple units being built in this region, on which there is a normal saving of time per unit. The monthly averages indicate a definite seasonal pattern; in general, the dwellings completed in the first half of the year required more than the average time to build, while those in the second half required less than the average.

It is estimated from the types of dwelling units being constructed that 25 per cent. of those completed in 1948 are for rental and that the remainder will be owner-occupied. Almost 40 per cent. of the rental units were built under the management of Central Mortgage and Housing Corporation.

The statistics are contained in 12 tables, and there are included four appendices: 1, Index of Residential Rents; 2. Definitions; 3. Reliability of the estimate; and 4. A List of Municipalities included in Metropolitan Areas. In addition there are graphs showing completed dwelling units (new construction and conversion) for 1945, 1946, 1947, and 1948; and the number of uncompleted dwelling units in the different areas at the end of 1948.

From 1945 onwards, Canada appears to have made good progress in house building. The figure at 1945 (new construction and conversions) was just under 50,000; in 1946 it went up to nearly 70,000; in 1947 to just under 80,000, and in 1948 to just over 81,000. The comparatively small increase last year over 1947 would suggest that the industry is nearing its maximum output. No forecast is given for 1949, neither is any opinion offered as to whether about 80,000 houses a year is adequate to meet the needs of a country with a population of more than 11 millions and the prospect of a considerable increase. Such information, of course, is not strictly statistical and may be omitted for that reason. If, however, something of the kind could be included in future Bulletins it would add greatly to their interest for readers in this country.



Export of Timber Houses.

Timber houses, designed to Government specification, are to be exported to Victoria, Australia. The contractors are Messrs. Simms, Sons and Cooke, Ltd., of Nottingham.

New Subscribers Accepted.

The London Association of Builders' Foremen and Clerks of Works announce that they can now accept a limited number of subscribers for their *Journal*, which is published quarterly. The annual subscription is 5s. The editor of the *Journal* is Mr. F. H. Gregory, 31, Fairmead-road, N.19.

ANGLO-AMERICAN PRODUCTIVITY

British Building Industry to Send Team to U.S.A.?

IN an address at the annual luncheon of the Nottingham Association of Building Trades Employers at Nottingham on April 27, MR. NORMAN LONGLEY, the President of the National Federation, gave some instances of what builders are doing to increase the productivity of the industry and thus lower the costs of their operations. Mr. Longley said:—

"At this moment the building industry is exploring the possibility of following the example of the steel-men and going to the United States to study building methods under the Anglo-American Productivity Council Scheme. We builders are always ready to learn, and I shall be disappointed if we do not get together a fully representative team of building employers, operatives, architects and surveyors, so that we can see for ourselves what we can learn from our American friends. And in the process we might perhaps be able to teach them something!"

Mr. Longley went on to say: "There can be no doubt that one of the methods of getting buildings up more quickly—this applies particularly to houses—is for more builders to adopt payment-by-results schemes. Many have already done so, but the application of these schemes throughout the building industry is no easy matter. In fact, it is fraught with difficulties. Even in an industry like ours, where industrial relations are of the best, it is not possible to make one incentives scheme apply to the many-sided activities which builders are called upon to carry out. Each of the many jobs we have to do requires a special incentive scheme—or, in any event, a variation of an existing one. It was to help our members to overcome the difficulties that the National Federation set up a Special Committee under the chairmanship of my predecessor, Mr. Frank Sleeman (of Exeter), to review the problems. To-day I can tell you that this Committee has completed an interim report, copies of which will be sent to each one of our members within the next few weeks. The report will give, for guidance, details of schemes which are actually being worked, and worked successfully, and when it has been discussed by the 17,000 members of the National Federation I hope that the way ahead will be much clearer, and that we can put into operation, over a wide field, payment-by-results schemes which will result in buildings of all types going up both more quickly and more cheaply.

Builders and Research.

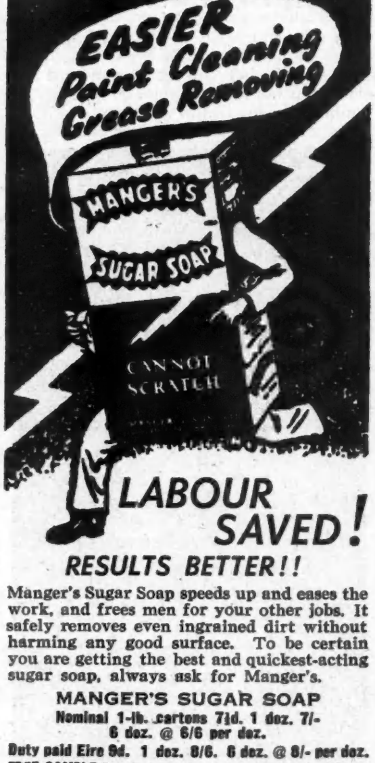
"Builders too, with costs in mind, are becoming increasingly research-minded, and the National Federation welcome the report just issued by the Research Advisory Council of the Ministry of Works. The Federation—which is represented on the Council by Mr. H. E. Comben (of London) and Mr. E. J. Smith (of Cardiff)—have been co-operating closely with it, and we shall give the report prompt consideration. We agree that the results of research must be brought in a simple form and brought quickly to the notice of our members. We have already set up machinery for this purpose, and are now considering how we can improve it.

"Whilst on this question of costs—particularly the cost of houses—I repeat that if the private enterprise house-builder had greater freedom to put up more houses for sale, then the cost of housebuilding would decrease, and heavy subsidies from the rates and taxes would be avoided. I can see no justification for the continued enforcement of the rule that there must be four houses built to let by local authorities to every one house built for sale. To-day, on the waiting lists of Councils, there are thousands, perhaps tens of thousands, who can show true need for a new home, and would prefer to own it. Why should they not be allowed to choose? All agree that a proportion of our houses must be built for elderly people, but the rule I have mentioned operates most harshly in their case. They wish, when their working days in the big cities are over, to retire to a little house or bungalow in the country, but they cannot do so because the cities have the large quotas, the rural districts the small, and at the moment there is an iron curtain between them."

Mr. Longley concluded by saying: "A few weeks ago I was in Rome attending the Second Session of the Building Committee of the International Labour Office. I have no hesitation in telling you to-day that the eyes of the free world are on Britain's builders. What we have done since the end of the war has impressed our opposite numbers in other countries. What we can do when the economic position of the country permits will astonish them."

Town Planning Act Index.

The price of the Town Planning Act Index prepared by the County Clerk's Department, Cupar, Fife, is 1s. 6d. per copy, not as previously published.



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EXPORT ENQUIRIES INVITED.

BUILDERS' WORKING PARTY EVIDENCE

Mr. Nigel Hannen on Service to the Community

SPEAKING as the guest of honour at a luncheon given in Hendon by the Northern Area, and attended by a number of the borough engineers and surveyors in the district, MR. NIGEL HANNEN, president of the L.M.B.A., referred to the Working Party as "an opportunity and a medium through which to put our claim to have given a high standard of service to the community."

"I am a great advocate of joint consultation with the operatives at all levels—national, regional and on the jobs themselves," said Mr. Hannen. "Monetary incentives have their place in achieving extra output, but the best incentive a man can have is an interest in his job. He cannot be interested unless he understands what he is doing and why.

"We are very fortunate in having such very friendly relationships with the professions, both at formal discussions with the R.I.B.A. and the R.I.C.S., through the Joint Contracts Tribunal, or the Standing Joint Committee for the Standard Method of Measurement of Building Works, and by less formal approach on minor points, for their doors are never closed to our representatives. We are a non-political body. We believe that when politics enter into an industry, service to the community takes a secondary place.

"We are also on good terms with members of the Government and with the permanent officials and, still nearer home, we are in very close touch with the borough engineers and surveyors.

Building Not a Factory Industry.

"We considered it necessary in our evidence to the Working Party to point out, what is obvious to us, but so few will appreciate, that we are not a factory industry, but that every job is different, and needs its own individualised organisation set up on the client's site.

"We are a highly competitive industry. That ensures efficiency. We have to keep up-to-date, and so face competition with confidence."

Mr. Hannen went on to say that it was a matter of history that direct labour could not compete with the private builder between the Wars, and even Mr. Bevan had warned local authorities that direct labour might be an expensive luxury.

The building industry was sectionalised to carry out definite types of work; the big contractor to meet the problems of large-scale operations, the medium-sized firms to give personal attention, which was the secret of providing for the diverse requirements of clients on either alterations or new work, and the small man to meet the urgent calls of repair jobs or small maintenance work. Each had his own particular place in serving the public needs, but, with a resilience peculiar to the building industry, each was capable, when the call came, of extending into an adjacent class of work.

Mr. Hannen concluded: "The Working Party was also warned that, too often, consideration of the problems of management takes into account only the execution of large works, and not the miscellany of smaller and repair jobs. Present conditions are not yet normal. There are still shortages of steel and softwood. There are still, therefore, priority classes of work, which must be encouraged, and other unessential work which should be discouraged."

CEMENT PRODUCTION

Case Against Nationalisation

IN response to the announcement that the Government, if they are returned to power, may nationalise the cement industry, Mr. George Earle, chairman of Associated Portland Cement Manufacturers, Ltd., has addressed a letter to stockholders requesting their views on the matter.

In the letter Mr. Earle states:—

"Your group of companies in 1948 delivered record tonnages in the home market and also in the export market where they exceeded the target figure set by the Government. Increased profit participation was given to our workmen. Cost of overheads compared with the cost of manufacture was reduced considerably below the pre-war figure. Progress is being made with our programme of extensions and improvements to our works in Great Britain and those in which we are interested in Canada, Mexico, and South Africa. The expenditure involved will eventually exceed £9 million, which we intend to finance without Government assistance. We are also working on developments in other countries.

"The efficiency of our industry is confirmed by the fact that the home trade selling price for cement (not including packages) is now only 53 per cent. above pre-war in the London area, which is always used for purposes of comparison by the Board of Trade. This compares with coal, 145 per cent.; chemicals, 100 per cent.; and general building materials, 108 per cent. In spite of this the profits from our trading activities as a whole remain satisfactory. It will interest you to know that in 1947 the contribution of the home trade in cement to our ordinary dividend represented under ¼d. a bag. This would enable the cost of a £1,300 house to be reduced by approximately 8s.

"If our company is nationalised, the directors find it difficult to believe that its efficiency would be improved; that the price of cement in the home market would be reduced; that the customer would obtain better services; that the working conditions of our staff and men would be improved; or that our position in the world export market would be improved, or even maintained."

Labour Manifesto Challenged.

A memorandum accompanies the letter addressed to stockholders and it states:—

The Labour Party Manifesto advocates the nationalisation of cement on the following grounds:—

(1) "*The efficiency of the Building Materials Industry must be raised.*" This is a strange justification for the nationalisation of cement. The Government exhorts industrialists to aim at the high productivity per man attained in the U.S.A. Why then does it propose to nationalise Portland cement, which, as stated by "The Review (September, 1948) of the International Labour Office," is the only British Industry, apart from fish-curing, which has a higher output per worker than in the United States? The present Minister of Works has himself stated in regard to this Industry:—"I recognise that it has attained a high standard of efficiency and that its record of production at a time when replacement of plant has been virtually impossible reflects credit on all concerned."

(2) "*The Industry is controlled by a tightly organised private monopoly which allows high profits to be made.*" There is no monopoly in the manufacture of cement. The Government have not even referred the Cement Industry to the Monopolies Commission. The fforde Committee appointed by the present Government reported:—

"We find that the profits earned by the Industry in the past have not by reference to capital employed been excessive. There is no evidence that the Federation has abused its position. The quality of the product has been improved since the formation of the Federation, and the Industry has in the past uniformly succeeded in meeting the demand. The Federation has not exercised its control for the sake of restriction of output, but has continually sought additional output for its manufactures."

Not an ounce of British cement has been sold in the home market for almost ten years except at prices which have been controlled by the Government.

Total deliveries in 1948 were a record. Of these 6,893,000 tons were in the home market and 1,628,000 tons were export. Yet of the total profits of the industry on cement, more than half were derived from export.

(3) "*More research and more effective standardisation is required in this Industry.*" For many years past highly efficient research organisations have been maintained individually and collectively by cement companies. Cement is undoubtedly one of the most standardised products used in the building industry.

(4) "*The Industry needs to expand to improve demands not only at home but abroad.*" Until the outbreak of war in 1939, the Industry planned expansion ahead of public demand, and in those days and during the war there was surplus production. The Industry's present plans for expansion involve an expenditure of more than £12 million, and these plans would have been further advanced had it not been for the difficulty of obtaining licences and materials.

Total deliveries for the week ended April 4 are an all time record.

WATerloo 6314 (6 lines)

AYGEE

METAL WINDOWS

100, WESTMINSTER BRIDGE ROAD
LONDON, S.E.1

ADVISORY COUNCIL ON BUILDING RESEARCH

First Report Recommends 150 Experimental Houses

BOTH employers and operatives in the building industry have already given practical demonstration of their willingness to experiment with new building materials and methods and to adopt mechanised methods of construction to the fullest possible extent. This is the view expressed in the First Report of the Advisory Council on Building Research and Development.*

The Council was appointed with Sir Harold Emmerson, K.C.B., as chairman, by the Minister of Works in December, 1947, to advise upon subjects for research and on methods of securing the use by industry of the results of research and technical development. One of the principal objects to be achieved if further progress is to be made, states the Report, is to bring research workers into closer contact with the different groups in the industry and educational bodies: every section of those engaged in building operations must be made aware of the most important conclusions reached by the research worker. The public "who pay the bill" must also be kept informed, so that they can encourage the adoption of modern improvements.

Experimental Houses.

One of the most important recommendations of the Committee is for the construction of approximately 150 houses in selected districts. This scheme will be the first attempt to determine the types of house design, services and equipment likely to ensure the best living conditions in low cost houses. The proposal is that 10 houses should be built on each of 15 sites (12 sites in England and Wales and 3 in Scotland). In England and Wales the houses will have a superficial area of 950 sq. ft., and in Scotland 1,100 sq. ft. They will be built in pairs in rows facing south, and heat insulated to an approved standard. Each house will differ in important respects from the others on a site. There will, for instance, be three ground-floor plans, differences in the first-floor plan, three systems of heating, variations in materials used, and in ventilation, cooking facilities, food storage accommodation, and in many of the appliances and fittings. Preparations are complete for work to start on three sites in Scotland while three sites in London have been chosen for development by the London County Council. Tenants for the houses will be selected from local authorities' housing lists.

"We expect the results will be of first importance not only to the Health Departments and local authorities, but to every house builder in the country," states the Report.

Reduction in Man-Hours.

"Experiments during the past few years on new methods of construction for houses have demonstrated that new principles for the manufacture and erection of walls can result in a saving of labour costs of up to 40 per cent. Two-thirds of the man-hours required to build a traditional house are taken up by operations not included in the erection of walls, and we consider it would be valuable to discover whether proportionate economies can be achieved by non-traditional techniques. We have therefore recommended a bold experiment in house construction

* Advisory Council on Building Research and Development. First Report. Published by H.M.S.O., price 6d. net.

involving the building of between 400 and 500 houses."

Research on Materials.

The Council also recommend continued research upon the properties and uses of all kinds of building materials. It may be possible, states the Report, to make greater use of stone, and it is recommended that an investigation should be carried out into house building in stone with particular reference to cost.

Structures.

In view of the shortage of some key building materials, such as timber and steel, it is also important that more precise information should be available on the standards of structural strength necessary for houses. "Much work remains to be done on frames of light alloy and reinforced concrete, and the development of prestressed concrete in long spans may have far-reaching results. In view of this we recommend that priority should be given to development work on prestressed concrete."

New Machines.

Experiments are now planned to show how much labour and cost are saved by new methods, not only under the controlled conditions of the development stage, but also under immensely varied conditions on site and factory work up and down the country.

Among the new machines which are in the process of being developed or tested are small excavators for footings and drain trenches, an earth auger for pile foundations, concrete transporters, mixer loading equipment, a roller conveyor for handling materials, a brick hoist attachment for a mechanical shovel, scaffold jacks, and temporary covers for building work. "We recommend that the Ministry of Works should consider granting exclusive licences to commercial concerns to manufacture new machines it has developed, for a fixed number of years; if this proves unsuccessful we think the Ministry itself might consider, in certain cases, placing an order with a commercial firm for a definite number of machines."

Clinker as a Building Material.

Clinker from the furnaces of power stations and similar large coal users can, if it is properly cleaned and processed, be a valuable building material in the form of blocks or as an aggregate for concrete. The Report accordingly recommends the erection of a pilot plant for cleaning boiler ashes using the pneumatic separation process. Plans are now proceeding for the erection of this at Twickenham, which is within easy reach of several power stations.

Summary of Recommendations.

Building Requirements. (1) The subject of heating in buildings should be given priority. (2) Research should be undertaken on a comprehensive scale on all aspects of the sociological, physical and functional requirements of buildings, and to this end a scheme involving the building of 150 houses in selected regions of Great Britain should proceed.

Materials. (3) An investigation should be carried out in house building in stone, with particular reference to cost. (4) Work on the following materials should be intensified: floor-surfacing materials, cellular concrete, light-weight aggregates, and prestressed concrete.

Design and Development of Mechanical Equipment. (5) Consideration should be given to the granting of exclusive rights for a fixed period of years to commercial firms who undertake to manufacture or develop new or improved types of mechanical equipment. (6) A pilot plant should be erected for cleaning boiler ashes using the pneumatic separation process.

Programme of Experiments in House Construction. (7) An experiment should be undertaken, involving the building of between 400 and 500 houses, to discover whether economies can be achieved by the extension of non-traditional techniques to all parts of house construction.

Publications. (8) More should be done in the future to present results of research in a simple and practical form which will appeal to the smaller type of building and civil engineering contractor, to the foreman and the clerk of works and also to the building student. (9) Two kinds of leaflet should be published: (a) illustrated introductory leaflets, and (b) informative leaflets containing useful technical information.

Exhibitions. (10) All suitable opportunities should be used to present results of research to the industry in the form of exhibitions or demonstrations.

Regional Advisory Service. (11) Experiments should proceed on a form of advisory service for the building industry.

IN PARLIAMENT

Scottish Housing

MR J. J. ROBERTSON, Joint Under-Secretary for Scotland, in moving the second reading of the Housing (Scotland) Bill, explained that it sought to do four things: first, to extend the powers of the local authorities to deal with the housing, not merely of the working classes, but of all classes of the community; second, to make financial assistance available for the improvement of existing houses; third, to provide certain new special subsidies for other housing purposes; and fourth, to make certain amendments to Scottish Housing Acts so that they would form a more comprehensive and flexible instrument of housing policy. Broadly speaking, there were three main types of houses ripe for improvement. First, there were big houses, either unoccupied or under-occupied, which could be subdivided into flats. Second, there were modest houses or flats of three to five rooms in town and country which did not have proper sanitary arrangements or other modern conveniences. Many of these houses were in small burghs and villages. Many of them were owner-occupied. The third group consisted of the many small dwellings, especially in tenements, which, when the new housing programme was further advanced, would have to be combined with others if they were to make reasonable homes for ordinary families.

It was proposed that local authorities might receive from the Exchequer three-quarters of their estimated expenses in giving effect to improvement proposals. The proportion in the Highlands and Islands would be seven-eighths. Also private persons might receive from local authorities grants up to 50 per cent. of the only accredited estimated expenses in carrying out their improvement proposals. It was stipulated that work of improvement must not prejudice the building of new houses, and a high standard, as near as possible that of a new house, would be expected.

Part IV of the Bill provided three new subsidies to meet special circumstances, namely, an additional subsidy for houses built of special materials to preserve the character of the surroundings; a subsidy for hostels; and an additional subsidy for building experiments.

The Bill was read a second time.

New Towns.

MR. SILKIN, replying to Lt.-Col. Bromley-Davenport, said he decided to proceed no further with the proposal for a New Town at Mobberley when it became clear that there was no site in the area sufficiently large and at the same time sufficiently free from the risk of subsidence to justify the use of the machinery provided by the New Towns Act. He hoped, however, to be able to announce a decision shortly on a separate proposal by Manchester City Corporation to develop a limited area at Mobberley for the reception of overspill population and industry from the city.

*** Speaking at Manchester on April 25, MR. SILKIN said that a new town for 20,000 to 30,000 people, instead of 60,000, is to be built at Mobberley. He agreed to permit town to be built by Manchester Corporation in view of reduction in size. This must not be regarded as a precedent, he added.

Planning Act Appeals.

Answering a question by Mrs. Middleton, MR. SILKIN said that the number of purchase notices received by him under Section 19 of the Town and Country Planning Act, 1947, was 570. Of these, 79 had been confirmed and his proposals to confirm 227 others had been notified to the parties concerned. In four other cases he had reversed the decision of the local planning authority which gave rise to the purchase notice and allowed the development to proceed; and in seven other cases he had notified his proposal to take similar action. In eight cases the notices had been rejected. The average period which elapsed between the serving of a purchase notice on the local authority and his final decision was 19 weeks. This included the time during which the notice was with the local authority, the statutory period of 28 days during which a hearing might be claimed, and the time needed to consider the notice.

Private Building.

MR. G. WILLIAMS asked the Minister of Health if he was aware that there were private builders with labour and materials available ready and willing to build houses cheaper and quicker than local authorities, but they could not obtain the permits, and if he would now alter the ratio of private building allowed.

MR. BEVAN replied in the negative. Builders who were willing and able to build houses should be able to do so for private owners possessing building licences, for local authorities under contract or for local authorities under special arrangements.

THE SCOTTISH BUILDER

NEW BUILDINGS

Edinburgh.—Additions and alterations, etc., to be constructed at the George Watson Ladies' College, George-st., for which the Edinburgh Merchant Company Education Board Architects, Edinburgh, have the plans in hand.

Glasgow.—Plans in hand for factory, etc., for Norie, Ltd., at Armour-st., for which the architects are Frank Burnet, Boston & Bell, 180, Hope-st., Glasgow.—Plans in hand for extensions and other works at 45 to 69, Tobago-st., Bridgeton, for N. H. & E. Caplan, Ltd., for which the architect is Hyam Zegleman, 249, Alliston-st., Govanhill, Glasgow, C.2.

Lanarkshire.—On a site at Strawfrank-rd., Carstairs Junction, an ice cream factory and other buildings are to be erected, for which the architects are Whyte & Barrie, 38, High-st., Lanark.

Lanarkshire.—On a site at Motherwell-rd., Bellshill, from plans by their own architects, the Dalziel Co-operative Society, Ltd., Dalziel-st., Motherwell, are to erect new premises, etc.

Lesmahagow.—Plans prepared by the Scottish Special Housing Association, Ltd., architects, 19, Palmerston-pl., West End, Edinburgh, for 15 blocks of houses at Bankhead.

Renfrewshire.—At the cotton factory, Thornliebank, new buildings are to be erected by the Dunlop Cotton Mills, Ltd., Castleton, Rochdale, Lancashire, from plans by their own architectural staff.

Uddingston.—Scheme for new canteen for Tannoch is in hand, for which the architects are Andrew Wright & Son, Rosebank-ave., Blantyre.

FUTURE CONSTRUCTION

PUBLIC APPOINTMENTS

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

MAY 3.

†***Farnborough U.D.C.**—22 houses at Hawley-la. estate. E. & S., Town Hall. Dep. £3. Tenders by May 16.

†***Leeds Regional Hospital Board.**—8 staff cottages at Meanwood Park Colony. Architect to the Board, 29-31, Eastgate, Leeds 2. Dep. £2 2s. Tenders by May 17.

MAY 4.

†***Cambridge T.C.**—Two permanent classrooms and alterations and additions to kitchens at Cambridgeshire High School for Girls, Long-rd. B.S. Dep. £3 3s.

MAY 6.

†***Bethnal Green B.C.**—20 flats at Bunsen-st T.C., Town Hall. Dep. £5 5s.

MAY 7.

Barking T.C.—Foundations to block of 18 flats at London-rd. B.E. & S., Town Hall. Dep. £2.

†***Bristol T.C.**—20 aged persons' dwellings at Greystoke-ave., Southmead. City A., Eagle House. Dep. £2 2s.

Ebbw Vale U.D.C.—18 houses. J. Leslie Thomas (L.), Council Offices, The Walk. Dep. £3 3s.

MAY 9.

Bradford T.C.—48 houses at Eccleshill (South) and 16 at Clayton (East). City A.

Chatham T.C.—14 houses at Wayfield estate. H. D. Peake, B.E. & S., Town Hall. Dep. £2 2s.

†***Southampton C.B.**—Erection of new Infants' School at Botley-rd. Boro' A. Dep. £2 2s. Tenders by June 7.

MAY 10.

***Coventry T.C.**—Adaptation and extension of Central Fire Station, Hales-st. W. S. Hattrell & Partners, 1, Queens-rd., Coventry. Dep. £2 2s.

Newport Pagnell R.D.C.—12 houses off Westla., Emberton, and 8 off Newport-rd., Stoke Goldington. K. Travis, architect, 7, Station-rd. Dep. £2 2s.

***York T.C.**—220 houses at Askham-la. estate (East). City E. & Architect, Guildhall. Dep. £5.

MAY 11.

Carmarthen R.D.C.—18 houses at 3 sites. G. G. Thomas, S., 3 Spilman-st. Dep. £3 3s. each site.

Hartley Wintney R.D.C.—Three pairs of houses at Ewshot site. E. & S. Council Offices. Dep. £3 3s.

†***Norfolk E.C.**—Erection of timber-framed hut with internal fittings, drainage, etc., for Aylsham branch library. Chief Ed. Officer, Stracey-rd. Dep. £2.

"THE BUILDER" PRICES

STANDARD METAL WINDOWS AND GALVANISED TANKS AND CISTERNS

The Minister of Works has authorised the following increases in the maximum prices of standard metal windows, and galvanised tanks and cisterns, as a result of an increase in the cost of raw materials.

For Standard Metal Windows the current percentage addition to standard list prices is authorised to be increased from 27½ per cent. to 33½ per cent., to operate as regards deliveries made on and after April 19, 1949.

For Galvanised Tanks and Cisterns manufactured by members of the Galvanised Tank Manufacturers' Association, the authorised increase is 10 points in the plusage on basic list prices. The revised maximum prices will operate as regards deliveries made on and after April 21, 1949.

ROUGH COPPER

The Ministry of Supply announces that as from April 27 their buying price for rough copper, 97.25 per cent. minimum, is reduced by £15 per ton to £90 per ton ex makers' works, for delivery by the end of the third month forward. For rough copper running 99 per cent. and over, there is an extra of £1 10s. per ton.

†***Norfolk E.C.**—Repairs at Eastern Hall, Home Farm. Ed. Architect, County Ed. Office, Stracey-rd., Norwich. Dep. £2 2s.

†**Thedwastre R.D.C.**—Eight houses with service road at Walsham-le-Willows. Hunt & Coates, 84, Guildhall-st., Bury St. Edmunds. Dep. £3 3s.

MAY 12.

***Ealing T.C.**—Reinstatement of second-class swimming bath at Longfield-ave. B.E. & S., Town Hall. Dep. £2 2s.

†***Friern Barnet U.D.C.**—Five pairs of houses at Colney Hatch-la. C., Town Hall. Dep. £2 2s.

MAY 13.

***Burnley C.B.**—10 pairs of houses at Brunshaw estate. B.E., Town Hall. Dep. £1 1s.

†***Harpenden U.D.C.**—24 houses at Batford estate. F. A. Harris, C., Harpenden Hall. Dep. £1 1s.

†***West Suffolk Standing Joint Committee.**—Conversion of Manor House, Bury St. Edmunds, into offices. County A., 13, Westgate-st., Bury St. Edmunds. Dep. £2 2s. Tenders by June 24.

MAY 14.

South Shields T.C.—36 houses at Centenary-ave. B.E. Dep. £2 2s.

MAY 16.

Cromer U.D.C.—22 houses and 6 bungalows at West Cliff-gdn. estate. J. Owen Bond & Son, St. Faith's House, Mountergate, Norwich. Dep. £1 1s.

Norfolk C.C.—Police houses at 7 parishes. County A., 25, Thorpe-rd.

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for Every Class of Building Work

By J. T. REA

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THESE TABLES GIVE FULL DETAILS OF:

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(2) Increases in Labour Rates and percentage increases for the above five years together with the Wages Increase and Bonus Incentive introduced in Oct., 1947.

(3) Average relative proportion of each trade to a complete building operation with ratios of Labour to Material in each Trade and approximate percentage increases for the respective years, 1937-1946.

(4) Percentage Cost of Building Work as at 1914 compared with the years 1920-1946.

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***Stepney T.C.**—War damage repairs to seven properties. Chief Technical Officer for War Damage, 191-193, Commercial-rd., E.1. Dep. £2 2s.

Worksop T.C.—88 houses at Manton. B.E., Park House. Dep. £5 5s.

MAY 17.

Bridgnorth T.C.—37 houses at Sydney Cottage estate, together with water drainage. B.S., College House. Dep. £2 2s.

Leeds Regional Hospital Board.—Eight staff cottages at Meanwood Park Colony. Architect, 29-31, East Gate. Dep. £2 2s.

Manchester E.C.—Conversion of 71-73, Shakespeare-st. into dental clinic. City A., Town Hall. Dep. £1 1s.

MAY 18.

***Tonbridge U.D.C.**—24 flats on Brook-st. estate. E. & S. Dep. £3 3s.

MAY 19.

***Belper R.D.C.**—(a) 28 pairs of houses and 6 bungalows at Duffield; (b) roads and sewers at same site. Chief Building S., Field Head House, Chesterfield-rd. Dep. £2 2s. for (a) and £1 1s. for (b).

MAY 21.

Bowland R.D.C.—Four houses at Rimington. Needham & Thorp (F. & A.), 6, High Petergate, York. Dep. £2 2s. by cheque.

MAY 23.

***Bootle C.B.**—52 houses on 28-acre site, nr. Ford Station. B.E. & S. Dep. £2 2s.

***Goole T.C.**—(a) 26 houses and 12 flats at Western-rd., (b) electrical work for same. B.E. & S., Municipal Offices. Dep. £2 2s.

MAY 24.

Newark R.D.C.—66 dwellings with road and sewers. W. Saunders & Partners, 24, Castle Gate. Dep. £3 3s.

***Southwick U.D.C.**—38 houses at Ridgeway Extension estate. E. & S., Town Hall. Dep. £3 3s.

MAY 25.

***Brighton C.B.**—108 houses in 3 sections at Lower Bevendean estate. B.E. & S., 26-30, King's-rd., Brighton. Dep. £2 2s. each section.

***Swindon and District Hospital Management Committee.**—(a) Adaptations and renovations to Haybrook House, Pewsey; (b) laying of new sewer from existing building and erection of ejector house. F. I. Bowden (A.), County A., County Hall, Trowbridge. Dep. £2 2s.

MAY 27.

***Sunderland E.C.**—Erection of Thorney-rd. Secondary Modern Schools and kitchen dining-rooms. S. W. Milburn & Partners, 9, The Esplanade. Dep. £4 4s.

MAY 31.

***Wallasey C.B.**—Erection of Somerville Secondary Modern School for Girls. Boro' A., 142-148, Brighton-st. Dep. £2 2s.

NO DATE.

Hull T.C.—96 houses at Bilton Grange estate. City A. Dep. £1 1s.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

MAY 6.

†***Bromley T.C.**—External painting and repairs at Bromley County Technical School for Girls. B.E.

MAY 11.

†***Lincoln (Parts of Kesteven) C.C.**—External painting of Grantham Technical College. County A., County Offices, Sleaford.

†***Lincoln (Parts of Kesteven) C.C.**—Internal decorations of Main School Block, Sandon-rd., Grantham. County A.

MAY 27.

***Bromley T.C.**—External painting of part of municipal-bldgs. and repairs to flat roofs. B.E.

***Sunderland C.B.**—Supply and installation of central heating and hot water supply apparatus and water-softening plant for Primary Junior School, Hill View. Ed. Architect, Mowbray Villas, Ryhope-rd. Dep. £2 2s.

ROADS, SEWERAGE AND WATER WORKS

MAY 10.

Acton T.C.—Roads and sewers at Ruislip-gdns. B.E., Town Hall. Dep. £2.

Kirkburton U.D.C.—Roads and sewers at Lepton. J. D. Woodhall, E., Town Hall. Dep. £2 2s.

Runcorn R.D.C.—Sewage disposal works and pumping station, etc., at Sutton. Ward, Ashcroft & Parkman, 38, The Temple, Dale-st., Liverpool, 2. Dep. £5 5s.

†**Sunderland C.C.**—4,700 lin. yds. of 6-in. dia. asbestos cement piping; 1,000 lin. yds. of 3-in. dia. steel piping and 12,300 lin. yds. of 3-in. and 2-in. dia. asbestos cement piping, etc., for Helmsdale and District Water Supply. Babtie, Shaw & Morton, 17, Blythswood-sq., Glasgow, C.2.

MAY 13.

Luton T.C.—Completion roads at Farley Hill estate. B.E. Dep. £2 2s.

MAY 14.

†**Newent R.D.C.**—Preparation of site at The Tythings. H. S. Jenkinson, S., Council Offices, Broad-st.

MAY 16.

†**Horsham R.D.C.**—1¼ miles of sewers and sewage disposal works. Howard, Humphreys & Sons, 17, Victoria-st., S.W.1. Dep. £5 5s.

Loughborough T.C.—Reinforced concrete service reservoir at East Leake. Water E., Southfields. Dep. £2 2s.

Marlow U.D.C.—Surface dressing of roads. S.

Rye T.C.—Roads and sewers at Tilling Green site. B.S., 10, High-st.

MAY 18.

Gainsborough U.D.C.—Sewage pumping station, etc., at Bowling Green-rd. E. & S., Council Offices. Dep. £2 2s.

MAY 27.

Wirksworth U.D.C.—Extension to sewage disposal works. Elliott & Brown, A.M.I.C.E., Stanley House, Pelham-rd., Nottingham. Dep. £3 3s.

MAY 30

Mid-Glamorgan Water Board.—Laying of cast-iron mains, etc., contract No. 63. Thomas & Morgan & Partners, 23, Gelliwastad-rd., Pontypridd. Dep. £3 3s.

NO DATE.

***Arundel T.C.**—Site works at Housing No. 2 scheme. T. Greenfield (F.), Newstead, Midhurst. Dep. £1 1s.

Cambridge T.C.—Site preparation works at Queen Edith's-way scheme. B.E. & S. Dep. £3 3s.

GENERAL BUILDING WORK (LONDON)

Acton.—FLATS.—B.C. propose 18 flats at Southfield-rd., at £28,000.

Addington.—YOUTH CENTRE.—Application by Mr. P. G. Greenslade, 38, Addiscombe-rd., E. Croydon, to erect youth centre at Chester-ave. has been approved.

Addiscombe.—WORKSHOP.—Messrs. Hollands & Blair, Ltd., 98, Cherry Orchard-rd., East Croydon, propose assembly workshop at that address.

Bermondsey. — FLATS. — B.C. Housing Committee has approved plans for 62 flats for Blocks 1 and 5, Ainsty-st. area.

Bermondsey.—COLD STORE BUILDINGS.—Messrs. G. R. Tasker, Sons & Partners, 1, Staple Inn, W.C.1, are the architects for new cold store buildings and offices proposed by Bermondsey Cold Store, Galleywall-rd.

Bermondsey.—YOUTH HALL.—Messrs. Victor Kerr and Colbourn, 7, Bedford-row, W.C.1, are the architects for a proposed temporary pre-cast hall for youth organisation at 46, Lower-rd.

Camberwell.—REBUILDING.—Mr. G. T. Harman, F.R.I.B.A., 90a, Lewisham High-st., S.E.13, is the architect for rebuilding of premises at 350-360, Lordship-la.

Chelsea.—ADDITION TO PREMISES.—Hudson's Furniture Depository, Ltd., Wilton-rd., S.W.1, propose five-storey addition to premises in Hortensia-rd.

Croydon.—PREFABRICATED CLASSROOMS.—Croydon E.C. recommend that Mr. R. A. Tatem A.R.I.B.A., of Messrs. E. C. P. Monson, Finsbury Pavement House, 120, Moorgate, E.C.2, be appointed architect for three prefabricated classrooms at the Kensington-ave. School, and that Mr. B. S. Lewis, F.R.I.B.A., 84, Norfolk-ave., Sanderstead, Surrey, be appointed architect for similar works at the Monks Orchard School.

Deptford.—SWIMMING BATHS.—B.C. proposes improvements, adaptation to swimming baths, Laurie-gr. Mr. Kenneth M. B. Cross, M.A., F.R.I.B.A., 45-46, New Bond-st., W.1, has been asked to prepare sketch plans.

East Finchley.—GREENHOUSES.—St. Pancras B.C. Establishments and Public Buildings Committee recommend provision of new greenhouses at East Finchley Cemetery at £15,500.

Hackney.—HOUSING.—Housing Committee to erect 18 houses as part of Warwick-gr. (South) Extension Scheme. Est. cost, £30,310. Direct labour.

Hackney. — HOUSING. — Housing Committee have approved a scheme for 104 dwellings at Prout-rd. Est. cost, £190,100.

Hackney.—HOUSING.—B.C. propose acquiring site for housing purposes at Rendlesham-rd./Maury-rd.

Hampstead.—HOUSING.—Messrs. F. S. Snow & Partners, Monro-bldg., Wellington-st., W.C.2, have been appointed consulting engineers for the West End-la. housing scheme.

Islington.—HOUSING.—B.C. has received sanction to borrow £128,797 for dwellings at Sparsholt-rd.

Kensington.—SCHOOL.—L.C.C. propose a new County Secondary School at Holland-pk.

Lewisham.—FLATS.—B.C. Housing Committee have approved plans prepared by the Borough Architect for erection of 131 flats on the Paragon-pl. housing site.

Lewisham. — HOUSING, ETC. — B.C. Housing Committee have approved sketch plans prepared by the Borough Architect for development of housing scheme at Ladywell Park, comprising 30 lock-up shops, office accommodation and 56 flats.

Lewisham. — DEPARTMENTAL STORE. — Royal Arsenal Co-operative Society considering erection of departmental store building, Belmont-hill

Lewisham.—FACTORY ANNEXE.—Mermaid Engineering Co. propose to build annexe to factory at 70a, Dalmain-road. The architects are Messrs. Tasker, Sons & Partners, 1, Staple Inn, W.C.1.

Lewisham.—FLATS.—J. Pusser & Co., 396, Old Kent-rd., have applied for permission to erect a block of flats on the site of "The Mount."

Lewisham.—FLATS.—Messrs. Ferris and Puckridge, chartered surveyors, 6, New Bridge-st., E.C.4, have applied for permission to erect six blocks of flats and 14 garages on the Woodthorpe estate.

Lewisham.—SHOPS.—Messrs. Wates, Ltd., 1250, London-rd., S.W.16, propose to complete erection of four shops with maisonettes over on sites of Nos. 338 to 344, Verdant-la.

Lewisham.—VICARAGE AND CHURCH HALL.—Mr. T. F. Ford, F.R.I.B.A., 25, Victoria-st., S.W.1, is the architect for the rebuilding of the vicarage and the erection of a new church hall, Westwood-hill.

St. Pancras.—VAULTS.—An application by Messrs. H. A. Whitburn & Sons, architects and surveyors, 12, Broadway, Woking, Surrey, for permission to demolish existing vaults and construct new and enlarged vaults under the public way in the Whitfield-st. frontage of Catesby's, Ltd., has been approved by the B.C. Public Works Committee.

Stoke Newington.—HOSTEL FOR WOMEN.—Messrs. Howes and Jackman, FF.R.I.B.A., 1, Verulam-bldgs., Gray's Inn, W.C.1, have been appointed by the B.C. as architects for hostel for women, Princess May-rd. and Belgrade-rd.

Upper Norwood.—HOUSES.—Messrs. A. Waddington & Son, Ltd., North Circular-rd., Stonebridge Park, N.W.10, propose 20 houses (6 with garages) in Spurgeon-rd. and Spurgeon-ave.

Upper Norwood. — HOUSES. — Streatham Property Investment Co., 1258-1260, London-rd., Norbury, S.W.16, propose five houses in Gibsons-hill.

Waddon.—FLATS.—Messrs. Louis Newmark, Ltd., 141-143, Stafford-rd., Croydon, propose block of four flats at 542-548, Purley-way.

Walthamstow.—GRAND STAND.—Walthamstow Avenue F.C. propose grand stand at their ground in Green Pond-rd.

Walthamstow.—HOUSES.—Messrs. Field Davis, Ltd., Norfolk-st., Barking, have informed B.C. that they are prepared to erect 4 houses on Blackhorse-la. site at £1,305 per house.

Walthamstow.—INDUSTRIAL BUILDING.—Messrs. Sapers, Ltd., propose to erect industrial building at rear of their premises in Argall-ave.

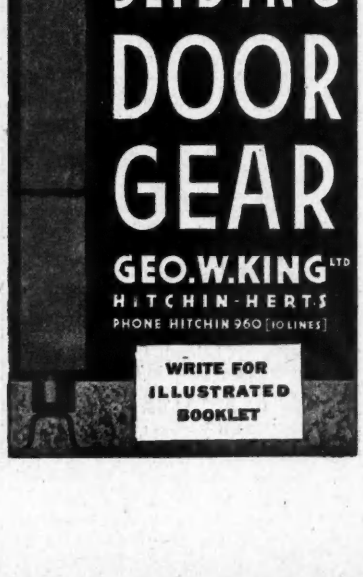
Walthamstow.—HOUSES.—Messrs. J. Wilson & Sons, 185, Beaconsfield-rd., Enfield, have undertaken to erect 5 houses on the Roberts-rd. site for the B.C. (£1,305 per house).

Westminster.—RESTORATION AND REBUILDING.—Restoration and rebuilding work at Westminster School proposed at est. cost of £40,000. Sir Hubert Worthington, A.R.A., 178, Oxford-rd., Manchester, is the architect.

West Thornton.—HOUSES.—Croydon and South London Building Co., Ltd., 140, Bensham-la., Thornton Heath, propose 3 houses and garages at 20-24, Dunheved-close.

West Thornton.—FACTORY ADDITION.—Messrs. H. J. Enthoven & Sons, Ltd., Upper Ordnance Wharf, Rotherhithe-st., S.E.16, propose addition to factory, Thornton Works, Thornton-rd.

West Thornton.—WORKS ADDITION.—Messrs. Taveley Press, Ltd., 286, Thornton-rd., propose addition to printing works at that address.



(PROVINCIAL)

Boldon.—U.D.C. to erect 40 further houses at Whitburn. Plans by S., N. Hindmarsh, Council Offices, E. Boldon, Co. Durham.

Bromborough.—Cheshire E.C. propose secondary school on Acre-l. (completion) at £90,000. E. M. Parkes (F.), County A., County Offices, The Castle, Chester.

Bromsgrove.—U.D.C. approved houses, Pikes Pool-la., Burcot, for W. G. Hall; East-rd., Stoney-hill, for C. C. Palmer; Rednal Hill-la., Rubery, for W. Ince; Old Birmingham-rd., Staple-hill, for S. W. Moseley; 6 houses, Bowes-rd., Rubery, for Wilnor Estates, Ltd.—Worcs E.C. propose primary schools at The Lickey and at Alvechurch. L. C. Lomas (F.), County A., 60, The Tything, Worcester.—R.D.C. seek sanction of M.H. to layout of Snake-la. housing estate, Alvechurch, for H. T. W. Gough (L.), 45, Newhall-st., Birmingham 3.

Chesterfield.—Derbyshire E.C. propose technical college and school of art at £220,000. F. H. Hamer (A.), County A., County Offices, St. Mary's-gate, Derby.

Chester-le-Street.—R.D.C. propose about 400 houses at Great Lumley and nursery school. Architect, F. Bowman, Birtley, Co. Durham.

Coventry.—F. W. Woolworth & Co., Ltd., 1, New Bond-st., London, W.1, propose 5-storey buildings on the Precinct and proposed new road for shops, stores and cafeteria to seat 600 persons, and administrative offices. W. A. Draysey, architect, 418, Fox Hollies-rd., Birmingham 28.—T.C. to apply to M.H. for sanction to loan £143,736 for 93 houses, 14 bungalows and 17 garages on Fletchampstead estate.—T.C. propose 420 houses at Canley; extensions to Whoberley school; health centre at junction of Broad-st. and Stoney Stanton-la.

Flint.—Flintshire E.C. propose county horticultural college at Northop; primary school for 320 children at Mostyn.

Goole.—M.O.H. has allocated 45 houses for this year.

Gosforth (Northumberland). — A further 80 houses are to be erected by U.D.C. Architects are Tasker & Child, Trinity-bldgs., New Bridge-st., Newcastle-on-Tyne. No contracts let.

Hoole.—U.D.C. decided to erect a further 30 houses on Linden-gr. estate at £43,335.

Hyde.—Fletcher Miller, Ltd., Alma Mills, propose reconstruction of factory bldgs. A. J. Howcroft & Son (F.), Priory-bldgs., Union-st., Oldham.

Lancashire.—E.C. propose secondary schools at Lea, Longridge, Bamber Bridge and Lostock Hall; nursery schools at Ulverston and Colne. G. Noel Hill (F.), County A., County Offices, Fishergate-hill, Preston.

Lichfield.—R.D.C. propose 120 houses on various sites. J. G. Rimond, S.

Littleborough.—U.D.C. propose 36 houses, Smithy Bridge site. E. S. England (A.), 12, Clegg-st., Oldham.

Macclesfield.—R.D.C. propose 311 additional houses on various sites in rural areas.

Manchester.—T.C. approved:—Alterations and additions to Bessemer Hotel, Gorton-la. and Taylor-st., Gorton, for Boddington's Breweries, Ltd. (H. Boddington (A.), 26, Old Burlington-st., London, W.1); alterations and additions to Thatched House hotel, Moston-la., Moston, for Openshaw Brewery Co., Ltd. (E. Ogden (F.), 1, Ridgefield, New Chorlton; Park hotel, Barlow Moor-rd., Chorlton-cum-Hardy, for Threlfall's Brewery Co., Ltd. (B. Waterhouse (F.), 134, Deansgate); rebuilding licensed premises, Rifle-rd., Chorlton-cum-Hardy, for Joshua Tetley & Son, Ltd. (F. Riley (L.) (Brameld & Smith), 284, Corn Exchange-bldgs., Fennel-st.); rebuilding and extensions at Sherwood hotel, Wilmslow-rd., Fallowfield, for Threlfall's Brewery Co., Ltd. (B. Waterhouse (F.), 134, Deansgate).—North-West Coal Board propose conversion of buildings in Portland-st. for administrative offices (H. S. Fairhurst & Son (F.), Chancery-chbrs., Brown-st.).—Barlow & Jones, Ltd., 86, Princess-st., propose conversion of Manchester House, Princess-st., to offices, warerooms and new headquarters.—Lancashire Congregational Union, 244, Deansgate, propose Congregational church at Baguley Hall estate, Wythenshawe (C. Wild, architect, 72, Bridge-st.).

Merthyr Tydfil.—T.C. propose 2,500 houses, also business premises, at about £5,000,000, for new town.

Newcastle.—Corporation is to erect 20 houses in Stamfordham-rd. Plans by City A., G. Kenyon, 18, Cloth-market, Newcastle.

Newcastle-on-Tyne.—E.C. approved preliminary plans for proposed Hilton Primary School at Blakelaw estate.

Newcastle, Staffs.—E.C. propose primary school on Hempstalls Farm estate. P. Normanton (L.), Schools A., Municipal-bldgs.

Northumberland.—Extensions are proposed at Barrasford Sanatorium. Architects, Cackett, Burns Dick & McKellar, 21, Ellison-pl., Newcastle.

Northumberland.—E.C. to provide additional accommodation at Westerhope and Wylam primary schools. County A., W. W. Tasker, County Hall, Newcastle.

Oldham.—E.C. propose primary school at Derker.

Otley.—West Riding E.C. propose repairs and renovations to Norwood council school.

Preston.—Vicar and P.C. propose memorial chapel to Lancashire Loyal Regiment in the Parish Church. D. Wynne Thomas (F.), 25, Wood-st., Bolton.

Sheffield.—E.C. propose primary school at Baslow-rd., Totley.

Skipton.—R.D.C. approved 29 houses, Colne-rd., Glusburn, for R. Patrick; canteen to works, Main-st., Farnhill, for Berry & Fletcher.

Southend.—An art gallery is proposed at Chalkwell-pk. at £20,000.

South Shields.—Additions are proposed at the General Hospital. Plans by P. H. Knighton, Newcastle Hospital Board, Osborne-rd., Newcastle-on-Tyne.

Sunderland.—Corporation propose 1,040 houses at Hylton Red House Farm. B.E., J. E. Lewis.

Tynemouth.—T.C. is to erect 68 houses. Plans by Boro. S., D. M. O'Herlihy.

Tynemouth.—Corporation is to build 40 houses at Moorpark estate. Plans by the Boro' S., D. M. O'Herlihy.

Urmston.—U.D.C. approved additions to factory and garage, Bailey-rd., Trafford-pk., for Concrete Unit Co., Ltd.; residential hotel, Cornhill-rd., Davyhulme, for Gartside's Brookside Brewery Co., Ltd., The Brewery, Ashton-under-Lyne.—U.D.C. propose community centre at Broadway estate; alterations and additions to "Collingwood," Davyhulme-rd., Davyhulme, for community centre.

Warrington.—T.C. received sanction to borrow £246,037 for 205 houses, Poplars-av. and Dalam Farm estates.—E.C. propose adult college at Cockhedge; primary school at Long-la.—C.E. Authorities propose schools in St. Elphin's-pk.

Whitehaven.—T.C. have agreed to build 170 houses at Sellafield.

Whitley Bay.—U.D.C. is to build 48 permanent houses at Seatonville. Plans by E. Roberts, surveyor.

Willaston.—T.C. approved erection of 134 houses.

TENDERS

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepptd subject to modification.*
¶ Denotes *accepted by H.M. Government Departments.*

Ashington.—Three shops and flats at Woodhorn-rd., for U.D.C. E. & S.: *E. Jeffcock (Contractors), Ltd., 107, New Bridge-st., Newcastle, £5,696 (amended tender).

Bacup.—Alterations and extensions to Lee Mill, for Gaskell & Co. (Bacup), Ltd. Arthur Brocklehurst (F.), St. James'-bldgs., Waterfoot, nr. Bacup: *H. Trickett & Sons, Ltd., Turton Hollow Works, Crawshawbooth, nr. Bacup.

Blackpool.—74 houses, Contract No. 2, at Mereside estate, for C.B. B.S.: *W. R. Salisbury & R. Peel, Ltd., 80, Mostyn-st., Llandudno, £98,613.

Brighouse.—14 aged persons' bungalows at Stoney-la. estate, for T.C. H. A. Sneezum, A.M.Inst.C.E., B.S., Municipal Offices, Commercial-st.: *J. Jagger & Sons, Ltd., Bailiffe Bridge, Brighouse, £11,763.

Bromsgrove.—Alterations to camp hutments for conversion into dwellings at Frankley and Wythall, for R.D.C. S. A. Price, Building S., R.D.C. Offices, Birmingham-rd.: *Hall Green Builders, Ltd., 12a, Baldwin's-la., Birmingham 28. £16-£21 per hutment.

Bromsgrove.—26 houses at Orchard estate, Sidemoor, for U.D.C. F. W. Goodman, A.M.Inst.C.E., S. Quantities by Baylis & Baylis, FF.R.I.C.S., 118, Colmore-row, Birmingham: *S. J. Smith & Co. (Bidford), Ltd., 205, Corporation-st., Birmingham 4, £37,018.

Bury.—Rebuilding factory at Elton Vale Bleach Works, Elton, for Joseph Parker & Son, Ltd. Builders: *Thompson & Brierley, Ltd., Union Saw Mills; steelwork: *Calefornia Engineering Co., Ltd., Lord-st. (both of Bury).

Carlisle.—Alterations and additions to Cumberland Infirmary, for Regional Hospitals Board: *John Laing & Son, Ltd., Dalston-rd., Carlisle.

Carlisle.—Alterations to factory at Currock-rd., for Nestlé's Milk Products, Ltd.: *John Laing & Son, Ltd., Dalston-rd., Carlisle.

Chester.—Central kitchen at Connah's Quay, for T.C.: *T. Fish & Co. (Deeside), Ltd., High-st., Connah's Quay, £8,369.

Consett.—36 houses at Leadgate, for U.D.C. Architect, John J. Eltringham, Derwent-st., Blackhill, Co. Durham: *C.T.C. (Builders), Ltd., Blackhill, Co. Durham.

Crawford.—Houses at Camp estate, for Lanarkshire C.C. Samuel MacColl, architect, County-bldgs., Beckford-st., Hamilton: Excavation, brick and building works, etc., *J. & J. MacCann, Biggar; carpentry, joinery, and allied works, etc., *Forrest & Agnew, Ltd., Carluke; slating and roughcasting and allied works, etc., *Lanarkshire Works Dept., Motherwell; plumber, sanitary engineering and allied works, etc., *Peter Barrie, Lanark; plaster, lathing and cement and allied works, etc.: *William Perrie, Lesmahagow; painter and allied works, etc., *Brisbane Paton, Lanark.

Davyhulme.—Six houses at Teasdale-av.: *D. Franklyn, Midland Bank-bldgs., Station-rd., Urmston, Manchester, £1,400 each.

Flixton.—10 houses at Gleneagles-rd.: *J. Maunders & Sons, Ltd., 554, Barton-rd., Stretford, Manchester, £1,435 each; four houses, Aldermere-cres.: *B. B. Bender, 7, Queensway, Levenshulme, Manchester 19, £1,547 each.

Gateshead.—Factory additions for Reed Millican & Co., Ltd., Team Valley Trading Estate. Architect, C. S. Errington, 46, Grainger-st., Newcastle-on-Tyne: *H. E. Pitt, Ltd., Leopold-st., Sunderland.

Gosport.—Houses, for T.C.: 12 at Lee-on-the-Solent, *Hawkins Bros., Ltd., £15,364; 4 houses, *N. Wetherell, £5,153.

Haydock.—24 aged persons' bungalows, off Park-st., for U.D.C, R. Main, S.: *Winn & Co. (Flixton), Ltd., 8, Delamere-rd., Flixton, Manchester.

Hexham.—Alterations at Hexham General Hospital to form pathological laboratory, for Newcastle Hospital Board: *H. D. Bird & Co., Hexham.

Hornchurch.—74 houses at Elm Park estate, for U.D.C.: *West & Evans, Ltd., £33,376 (28); *Sage & Tomlinson, £14,846 (12); *J. T. Barrett & Co., Ltd., £20,558 (18); *W. & J. Weatherhead, £19,709 (16).

Jarrow.—Further factory additions at Bede Trading Estate, for British Celanese, Ltd. Architects, Cackett, Burns Dick & McKellar, 21, Ellison-pl., Newcastle-on-Tyne: *Middleton & Co., Darlington and Blackpool.

Lambeth.—84 dwellings at Bonham-rd., for B.C.:

Prestige & Co., Ltd.	£98,793
H. T. Oliver & Sons, Ltd	96,334
Co-operative Wholesale Society, Ltd. ...	94,673
G. Miskin & Sons, Ltd.	94,600
Griggs & Son, Ltd.	93,997
Rowley Bros., Ltd.	92,752
A. Roberts & Co., Ltd.	91,110
Dove Bros., Ltd.	90,950
F. G. Minter, Ltd.	90,698
Walter Lawrence & Sons, Ltd.	90,140
Hall, Beddall & Co., Ltd.	89,885
John Laing & Sons, Ltd.	89,830
E. H. Burgess, Ltd.	89,497
Wilson, Lovatt & Sons, Ltd.	88,214
Geo. Parker & Sons, Ltd.	87,387
*Clarke, Barton & Co., Ltd.	85,182

(Subject to necessary approvals.)

Leytonstone.—Construction of underbridge at Grove Green-rd., for Ministry of Transport. Rendel, Palmer & Tritton, consulting engineers to Essex C.C. *W. & C. French, Ltd., Buckhurst Hill, Essex; fabricated steelwork by Matthew T. Shaw & Co., to be erected by Askham & Palin, Ltd.

L.C.C.—Contracts exceeding £2,500 in value placed by L.C.C. during period ended April 26. Foundation work, etc., for primary school at Coldharbour Farm estate, Woolwich, The Bunting Construction Co., Ltd., S.W.2. Electrical installation at Park Walk School, Chelsea, Courtney Pope (Electrical), Ltd., N.15. Laying out of gardens to block dwellings at Minerva and Tufnell Park estates, Grassphalte, Ltd., Hampton Hill, Middx. Construction of five blocks of dwellings, 53 perambulator sheds and children's fitted playground at Caroline estate, Hammersmith, Kent & Sussex Contractors, Ltd., Sidcup, Kent. Erection of M.o.W. huts in playground of Ravensbourne School for use by South-East London technical college, Deptford, H. T. Oliver & Sons, Ltd., S.W.9.

¶London (Admiralty).—*Culdrose* R.N.A.S., 24 Cornish Unit houses, Selleck Nicholls & Co., Ltd., East Hill, St. Austell, Cornwall.

¶London (Air Ministry).—Contracts to value of £500 or over for week ended April 16. Civil engineering work: G. Percy Trentham, Ltd., Hillingdon, Middx. Painting work: Galbraith Bros., Ltd., Diss, Norfolk.

¶London (Air Ministry).—New contracts to value of £500 or over for week ended April 23. *Civil engineering work:* W. & C. French, Ltd., Buckhurst Hill, Essex. *Repairs to heating and hot water installation:* G. N. Haden & Sons, Ltd., Plymouth, Devon. *Heating and hot water installation:* Dodd Engineering Co., Ltd., Manchester 15. *Installation of ventilating equipment:* Norris Warming Co., Ltd., London, W.C.1. *Building work:* G. H. Miller & Co., Ltd., London, E.7; J. Jarvis & Sons, Ltd., London, S.W.1.

¶London (M.O.W.).—Contracts placed by M.O.W. during week ended April 16:—

London: Faraday-bldgs, South, E.C., Installation of new power plant, John Greenwood, Ltd., King William-st. House, Arthur-st., E.C.4; Bounds Green Sec. Sch., Bounds Green-rd., N.11, Temp. school bldgs., Parsons Bros. & Jennings, Ltd., 314, High-rd., Tottenham, N.15; Sydenham County Primary School, Dartmouth-rd., S.E.26, Dining-room and kitchen, Geo. Moss & Sons, Ltd., Cranleigh Wharf, Lady Margaret-rd., Southall, Middx; St. James R.C. School, Orange Hill-rd., Hendon, N.W.4, Dining-room and kitchen, J. M. Hill & Sons, Ltd., Heather Park-dr., North Circular-rd., Wembley, Middx. *Beds:* N.A.E., Bedford, Main sub-station, Geo. Wimpey & Co., Ltd., Tilehouse-la., Denham, Uxbridge. *Bucks:* Forestry Commission, Wendover, Houses, F. Chandler & Sons, Ltd., Long Marston, nr. Tring. *Ches.:* Council School, Balfour-rd., Runcorn. Hutted accommodation, J. Angus Collin, Ltd., Chester-rd., Little Sutton, Wirral; Woodlea Mixed & Infants' School, Bramborough, Hutted accommodation, Edward Thomas (Contractors), Ltd., 74-76, Woodchurch-la., Prenton, Birkenhead. *Glam:* Telephone Exchange, Skewen, Erection, Griffith Davies & Co., Ltd., Paxton-yd., Swansea; Gladstone-rd. School, Barry, Kitchen and dining-room, Graham Bros. (Builders), Ltd., Allensbank-rd., Cardiff. *Kent:* Longfield, Automatic telephone exchange, Hill & Curr, 15, West-st., Bromley. *Middx:* Test House, A.I.D., Harefield, Internal painting, Ernie Bayliss, Ltd., 57, St. Stephen House, S.W.1; St. Mary's School, Twickenham-rd., Isleworth, Dining-room and kitchen, George Moss & Sons, Ltd., Cranleigh Wharf, Lady Margaret-rd., Southall. *Oxfordshire:* Blenheim Palace, Woodstock, Dilapidations, etc., P.C.S., Ltd., 41, Albemarle-st., S.W.1. *Worcs:* N.S.H.C. Industrial Hostel, Malvern Hall, Blackpole, Interior and external painting, Geo. Harrison & Sons (Builders), Ltd., 13, Worcester-rd., Droitwich.

¶London (War Dept.).—Works contracts placed by War Dept. for week ended April 16:—

Surrey: Miscellaneous work, Blackmore & Co., Merstham, Surrey. *Yorks:* Miscellaneous work, C. W. Haynes, Ltd., Scarborough. *Hants:* Miscellaneous work, Mr. R. W. Dowman, Southampton. *Devon:* Heating and hot-water installation work, The "Ray-Heeting" Co., Ltd., Leatherhead, Surrey.

Middlesbrough.—52 houses (scheme 59) at Thorntree Estate, for T.C. J. A. Kenyon, B.E.: *R. H. Bailey & Son, Denmark-st., Middlesbrough, £62,652.

Middleton.—Sanitary block at Rhodes Print Works, for Calico Printers' Association, Ltd. Architect's Dept., St. James'-bldgs., 89, Oxford-st., Manchester: *T. W. Evans (Didsbury), Ltd., 3, Spring-gdns., Didsbury, Manchester 20.

Middleton.—52 houses at seven sites, for T.C. J. Pollard (L.), B.E. and Architect: *W. Richards, 1, Grey-st. (2); *Whiteman & Ashton, Rochdale-rd. (2); *Whitworth Bros., 480 Oldham-rd. (4); *A. Redfern & Sons, Ltd., Fields New-rd., Chadderton, Oldham (6); *H. Pickup, 35, Rochdale-rd. East, Heywood (6); *H. Green & Son (Builders), Ltd., Stocks Farm House, Cheetham Hill-rd., Manchester 8 (8); *Booth, Tonge & Co., Ltd., 58, Mainway, Alkrington (8); *Ashton Smethurst (Builders), Ltd., Suffield-st. (16). (Rest of Middleton.)

Newcastle-on-Tyne.—22 houses at Blackett-Ord Estate, for City Council. George Kenyon,

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City A., 18, Cloth-market: *W. H. Oliver, Ltd., Silver Lonnen, Newcastle-on-Tyne.

Newcastle-on-Tyne.—Alterations at Clayton-st., for Crossling & Co.: *Stephen Buy, 224, Westgate-rd., Newcastle-on-Tyne.

Norfolk.—Erection of Hellesdon Infants' New School, for E.C. Chief Education Officer, Stracey-rd., Norwich:—

W. F. Pointer & Sons, Ltd., Norwich	£39,000
T. Gill & Son, Norwich	38,629
W. Llewellyn & Sons, Ltd., Norwich	38,166
H. J. Crane, Esq., Norwich	37,280
R. G. Carter, Ltd., Drayton	37,200
F. P. Goodey, Ltd., Norwich	36,380
D. G. Harvey, Esq., New Costessey	35,947
H. C. Greengrass & Sons, Ltd., Norwich	35,889
*Burrell Bros., Norwich	35,419

Oldham.—Completion of nursery school at Roundthorn, for E.C. J. W. Hitching, Schools Architect, Education Offices, Union-st. West: *The Haldean Building Co., Booth-st., Middleton, nr. Manchester, £10,350.

Ongar.—11 houses at Pancroft estate, for R.D.C. Raymond L. Luck, A.R.I.C.S., M.I.Mun.E., A.M.T.P.I., M.R.S.I., E. & S.: *S. W. Low, Hoe-la., Abridge, Essex, £14,320.

Portsmouth.—Conversion of huts at Bedhampton Camps into 165 temporary dwellings, for T.C. City A., Room 25, 1, Western-parade, Southsea:—

E. & A. Sprigings, Portsmouth	£83,720
John Lay & Co., Portsmouth	75,847
C. Silvester & Co., Ltd., Hayling Island, Hants	74,414
Howe & Bishop, Portsmouth	73,623
Thomas Stride & Son, Portsmouth	73,619
C. F. Brown & Son, Portsmouth	73,206
Henry Jones & Son, Portsmouth	72,389
E. Dye, Portsmouth	71,446
Cortis & Hankins, Ltd., Farlington, Hants	71,443
F. J. Privett, Ltd., Portsmouth	69,577
H. Howard & Son, Portsmouth	67,831
*Portsmouth, Gosport & District Builders' Guild, Portsmouth	62,101

St. Pancras.—Further 28 flats at St. Pancras-way scheme: *Harry Neal, Ltd (extension of contract).

Southampton.—Construction of Section 1 of extensions at Shirley Transport Depot, for C.B. Boro' A., Civic Centre: *Rice & Son, Ltd., 61, Millbrook-rd., Southampton, £15,092.

Stafford.—Alterations and additions at Green Hall, Lichfield-rd., for conversion to County Education Offices, for Staffs C.C. A. C. H. Stillman (F.), County Ed. Archt., Earl-st.: *Green & Bird, Ltd., West Hill, Hednesford, Cannock, Staffs, £11,723.

Stalybridge.—Extensions to day nursery at Victor Mill, Clarence-st., for Fine Spinners and Doublers, Ltd. Architect's Dept., 8, St. James'-sq., Manchester 2: *W. Storrs, Sons & Co., Ltd., Aqueduct Saw Mills, Stalybridge.

Stockport.—Day nursery at Welkin Mill, Lower Bredbury, for Lancashire Cotton Corporation, Ltd. Architects Dept., Blackfriars house, St. Mary's-parsonage, Manchester 3: *Hibbert & Penn, Ltd., Clwyd-av., Edgeley, Stockport.

Stoke Newington.—Erection of two flats and shop premises at Allen-rd., for B.C.: *G. W. Rance, Ltd., Shelbourne-rd., N.17, £7,000.

Stourbridge.—37 houses at Norton estate, for T.C. G. N. Maynard, A.M.Inst.C.E., B.S.: *N. Hyde, Claremont-rd., Sedgley, nr. Dudley, £47,907 (in lieu of tender previously accepted).

Swaffham.—10 houses at Sporle, for R.D.C.: *Potter Bros., £14,000.

Swinton and Pendlebury.—Extensions at Grosvenor-rd. County School, for Lancs E.C. G. Noel Hill (F.), County A., County Offices, Fishergate-hill, Preston: *J. Gerrard & Sons, Ltd., Pendlebury-rd., Swinton, Manchester, £83,235.

Thornaby-on-Tees.—50 houses at Lanehouse-rd., for T.C. P. Brown, B.E.: *Direct Labour.

Todmorden.—Extensions to Portsmouth Mill, nr. Todmorden, for Robert Pickles. F. Lindop, Architect, 3, Bridge-st. Builders: *William Whitham & Sons, 21, Chiltern-av., Higher Brunshaw, Burnley; steelwork: *William Hare, Ltd., Lloyds Bank-chbrs., Bolton.

Wallasey.—24 houses at Moreton estate area P3, for T.C. Boro' A.: *W. H. Farrell, Ltd., 175, Borough-rd., Wallasey, £29,484.

West Hartlepool.—Increasing accommodation at Graythorp Dockyard, for William Gray & Co., Ltd., shipbuilders. Engineer, T. F. Burns, 11, Victoria-st., London, S.W.1: *Holland & Hannen and Cubitts, Ltd., London, S.W.1.

Whitehaven.—120 Easiform houses, for T.C.: †John Laing & Sons, £160,436 (subject to M.H. approval).

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